

MASSACHUSETTS AVENUE AT WORTHEN ROAD

INTERSECTION IMPROVEMENTS

IN THE TOWN OF

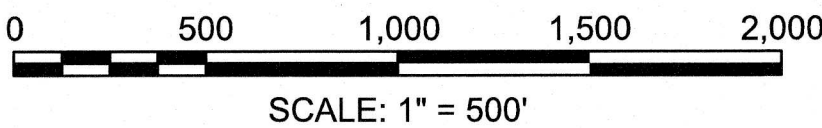
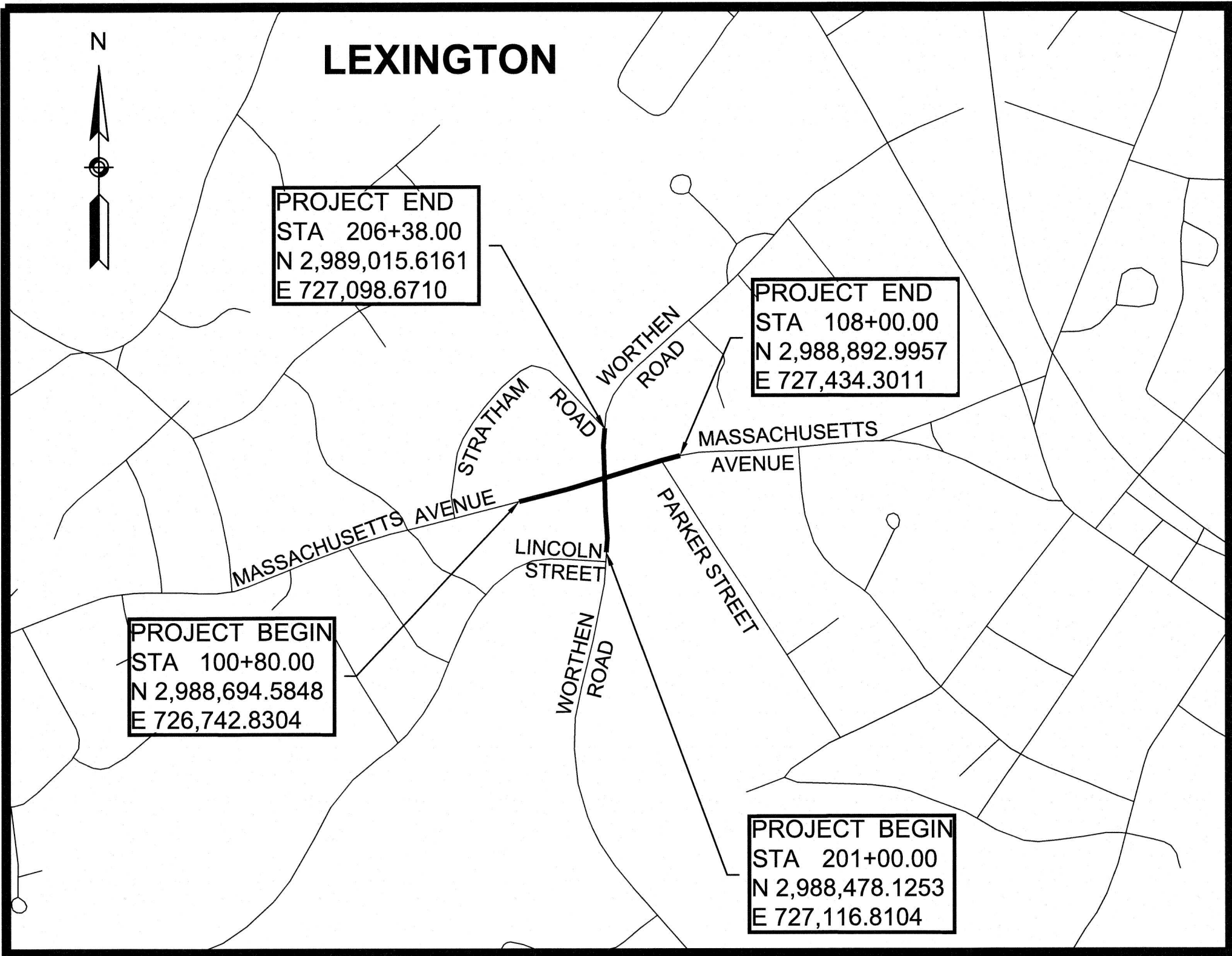
LEXINGTON

MIDDLESEX COUNTY, MASSACHUSETTS

JANUARY 22, 2020

CONTRACT #20-40

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LEXINGTON WORTHEN ROAD AT MASSACHUSETTS AVENUE			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	1	29
HSH PROJECT FILE NO. 2016212.00			
TITLE SHEET & INDEX			

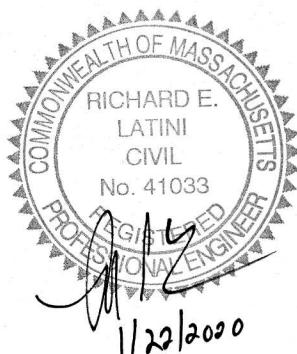
THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED 1988, AS AMENDED, THE SUPPLEMENTAL SPECIFICATIONS DATED JULY 1, 2015, THE 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS WITH MASSACHUSETTS AMENDMENTS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, WILL GOVERN.


DESIGN DESIGNATION (MASSACHUSETTS AVENUE)

DESIGN SPEED	30 MPH
ADT (2017)	13,122
ADT (2027)	16,011
K	9.0%
D	53% (EB)
T (PEAK HOUR)	0.4%
T (AVERAGE DAY)	0.4%
DHV	1,441
DDHV	764
FUNCTIONAL CLASSIFICATION	URBAN MINOR ARTERIAL

DESIGN DESIGNATION (WORTHEN ROAD)

DESIGN SPEED	30 MPH
ADT (2017)	17,477
ADT (2027)	21,325
K	9.0%
D	54% (SB)
T (PEAK HOUR)	0.38%
T (AVERAGE DAY)	0.37%
DHV	1,919
DDHV	1,036
FUNCTIONAL CLASSIFICATION	URBAN MINOR ARTERIAL



01/22/2020	FINAL SUBMISSION
DATE	DESCRIPTION
PREPARED BY:  HOWARD STEIN HUDSON 11 Beacon Street, Suite 1010 Boston, MA 02108 www.hshassoc.com	

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		JERSEY BARRIER
		CATCH BASIN
		CATCH BASIN CURB INLET
		FLAG POLE
		GAS PUMP
		MAIL BOX
		POST SQUARE
		POST CIRCULAR
		WELL
		ELECTRIC HANDHOLE
		FENCE GATE POST
		GAS GATE
		BORING HOLE
		MONITORING WELL
		TEST PIT
		HYDRANT
		LIGHT POLE
		COUNTY BOUND
		GPS POINT
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
		MASSACHUSETTS HIGHWAY BOUND
		MONUMENT
		STONE BOUND
		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
		TROLLEY POLE OR GUY POLE
		TRANSMISSION POLE
		UTILITY POLE W/ FIREBOX
		UTILITY POLE WITH DOUBLE LIGHT
		UTILITY POLE W / 1 LIGHT
		UTILITY POLE
		BUSH
		TREE
		STUMP
		SWAMP / MARSH
		WATER GATE
		PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
		CONTOURS (ON-THE-GROUND SURVEY DATA)
		CONTOURS (PHOTOGRAMMETRIC DATA)
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		BALANCED STONE WALL
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
		CHAIN LINK OR METAL FENCE
		WOOD FENCE
		HAY BALES/SILT FENCE
		TREE LINE
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND BUFFER
		200 FT RIVERFRONT BUFFER
		STATE HIGHWAY LAYOUT
		TOWN LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		PROPERTY LINE
		TEMPORARY EASEMENT

TRAFFIC SIGNAL LEGEND

PROPOSED	EXISTING (TO REMAIN)	REMOVE/ABANDON	DESCRIPTION
			CONTROLLER CABINET
			SIGNAL POST
			MAST ARM
			VEHICULAR SIGNAL
			BICYCLE SIGNAL
			OPTICALLY PROGRAMMED VEHICULAR SIGNAL
			PEDESTRIAN SIGNAL
			VIDEO DETECTION
			AUDIBLE PEDESTRIAN PUSH BUTTON
			PULL BOX (CITY STANDARD)
			CONDUIT
			LOOP DETECTOR
			VIDEO DETECTION ZONE
			PRE-EMPTION DETECTOR
			PRE-EMPTION FLASHER
			PTZ TRAFFIC CAMERA

PAVEMENT MARKING LEGEND

	4" SOLID WHITE EDGE LINE
	4" SOLID YELLOW EDGE LINE
	4" SOLID WHITE LANE LINE
	4" BROKEN WHITE LANE LINE 10' MARK - 30' SKIP
	4" DOTTED WHITE LANE LINE 2' MARK - 6' SKIP
	12" SOLID WHITE CHANNELIZATION LINE
	12" SOLID YELLOW CHANNELIZATION LINE
	2-4" YELLOW CENTER LINES, 4" GAP
	WHITE STOP LINE (12" UNLESS OTHERWISE SPECIFIED)
	WHITE - CROSS WALK (10' WIDTH; 18" LONGITUDINAL LINES, 3' O.C.) (UNLESS OTHERWISE SHOWN)
	12" SOLID WHITE CHANNELIZATION (5' O.C. @45°).
	12" SOLID YELLOW CHANNELIZATION (5' O.C. @45°).
	BIKE LANE SYMBOL
	SHARED LANE MARKING

ABBREVIATIONS

LEXINGTON WORTHEN ROAD AT MASSACHUSETTS AVENUE			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	2	29
HSH PROJECT FILE NO. 2016212.00			
LEGEND & ABBREVIATIONS			
GENERAL		ABBREVIATIONS (CONT)	
AADT	ANNUAL AVERAGE DAILY TRAFFIC	R	RADIUS OF CURVATURE
ABAN	ABANDON	R&D	REMOVE AND DISPOSE
ADJ	ADJUST	RCP	REINFORCED CONCRETE PIPE
APPROX.	APPROXIMATE	RD	ROAD
A.C.	ASPHALT CONCRETE	RDWY	ROADWAY
ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE	REM	REMOVE
BIT.	BITUMINOUS	RET	RETAIN
BC	BOTTOM OF CURB	RET WALL	RETAINING WALL
BD.	BOUND	ROW	RIGHT OF WAY
BL	BASELINE	RR	RAILROAD
BLDG	BUILDING	R&R	REMOVE AND RESET
BM	BENCHMARK	R&S	REMOVE AND STACK
BO	BY OTHERS	RT	RIGHT
BOS	BOTTOM OF SLOPE	SB	STONE BOUND
BR.	BRIDGE	SHLD	SHOULDER
CB	CATCH BASIN	SMH	SEWER MANHOLE
CBCI	CATCH BASIN WITH CURB INLET	ST	STREET
CC	CEMENT CONCRETE	STA	STATION
CCM	CEMENT CONCRETE MASONRY	SSD	STOPPING SIGHT DISTANCE
CEM	CEMENT	SHLO	STATE HIGHWAY LAYOUT LINE
CI	CURB INLET	SW	SIDEWALK
CIP	CAST IRON PIPE	T	TANGENT DISTANCE OF CURVE/TRUCK %
CLF	CHAIN LINK FENCE	TAN	TANGENT
CL	CENTERLINE	TEMP	TEMPORARY
CMP	CORRUGATED METAL PIPE	TC	TOP OF CURB
CSP	CORRUGATED STEEL PIPE	TOS	TOP OF SLOPE
CO.	COUNTY	TYP	TYPICAL
CONC	CONCRETE	UP	UTILITY POLE
CONT	CONTINUOUS	VAR	VARIES
CONST	CONSTRUCTION	VERT	VERTICAL
CR GR	CROWN GRADE	VC	VERTICAL CURVE
DHV	DESIGN HOURLY VOLUME	WCR	WHEEL CHAIR RAMP
DI	DROP INLET	WG	WATER GATE
DIA	DIAMETER	WIP	WROUGHT IRON PIPE
DIP	DUCTILE IRON PIPE	WM	WATER METER/WATER MAIN
DW	STEADY DON'T WALK - PORTLAND ORANGE	X-SECT	CROSS SECTION
DWY	DRIVEWAY		
ELEV (or EL.)	ELEVATION		
EMB	EMBANKMENT		
EOP	EDGE OF PAVEMENT		
EXIST (or EX)	EXISTING		
EXC	EXCAVATION		
F&C	FRAME AND COVER		
F&G	FRAME AND GRATE		
FDN.	FOUNDATION		
FLDSTN	FIELDSTONE		
GAR	GARAGE		
GD	GROUND		
GG	GAS GATE		
GI	GUTTER INLET		
GIP	GALVANIZED IRON PIPE		
GRAN	GRANITE		
GRAV	GRAVEL		
GRD	GUARD		
HDW	HEADWALL		
HMA	HOT MIX ASPHALT		
HOR	HORIZONTAL		
HYD	HYDRANT		
INV	INVERT		
JCT	JUNCTION		
L	LENGTH OF CURVE		
LB	LEACH BASIN		
LP	LIGHT POLE		
LT	LEFT		
MAX	MAXIMUM		
MB	MAILBOX		
MH	MANHOLE		
MHB	MASSACHUSETTS HIGHWAY BOUND		
MIN	MINIMUM		
NIC	NOT IN CONTRACT		
NO.	NUMBER		
PC	POINT OF CURVATURE		
PCC	POINT OF COMPOUND CURVATURE		
P.G.L.	PROFILE GRADE LINE		
PI	POINT OF INTERSECTION		
POC	POINT ON CURVE		
POT	POINT ON TANGENT		
PRC	POINT OF REVERSE CURVATURE		
PROJ	PROJECT		
PROP	PROPOSED		
PSB	PLANTABLE SOIL BORROW		
PT	POINT OF TANGENCY		
PVC	POINT OF VERTICAL CURVATURE		
PVI	POINT OF VERTICAL INTERSECTION		
PVT	POINT OF VERTICAL TANGENCY		
PVMT	PAVEMENT		
PWW	PAVED WATER WAY		

TRAFFIC SIGNAL

CAB.	CABINET
CCVE	CLOSED CIRCUIT VIDEO EQUIPMENT
DW	STEADY DON'T WALK
FDW	FLASHING DON'T WALK
FR	FLASHING CIRCULAR RED
FRL	FLASHING RED LEFT ARROW
FRR	FLASHING RED RIGHT ARROW
FY	FLASHING CIRCULAR AMBER
FYL	FLASHING AMBER LEFT ARROW
FYR	FLASHING AMBER RIGHT ARROW
G	STEADY CIRCULAR GREEN
GL	STEADY GREEN LEFT ARROW
GR	STEADY GREEN RIGHT ARROW
GSL	STEADY GREEN SLASH LEFT ARROW
GSR	STEADY GREEN SLASH RIGHT ARROW
GV	STEADY GREEN VERTICAL ARROW
OL	OVERLAP
PED	PEDESTRIAN
PTZ	PAN, TILE, ZOOM
R	STEADY CIRCULAR RED
RL	STEADY RED LEFT ARROW
RR	STEADY RED RIGHT ARROW
TR SIG	TRAFFIC SIGNAL
TSC	TRAFFIC SIGNAL CONDUIT
W	STEADY WALK
Y	STEADY CIRCULAR AMBER
YL	STEADY AMBER LEFT ARROW

GENERAL NOTES

SURVEY

1.

ALL UNDERGROUND UTILITIES AS SHOWN WERE COMPILED UTILIZING SURVEY INFORMATION COMPLIED BY A-PLUS CONSTRUCTION SERVICES, TITLED EXISTING CONDITIONS PLAN MASS. AVE AND WORTHEN ROAD, LEXINGTON, MASSACHUSETTS DATED MARCH 1, 2017.
2.

THE ACCURACY AND COMPLETENESS OF UNDERGROUND UTILITIES AS SHOWN ON THE PLANS ARE NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE EXACT LOCATION, SIZE, TYPE, ETC. OF ALL UNDERGROUND UTILITIES THAT MAY BE AFFECTED BY THE WORK. AT LEAST 72 HOURS BEFORE DIGGING BEGINS, THE CONTRACTOR IS REQUIRED TO CALL DIG SAFE AT (888)344-7233. ALL TOWN OWNED UTILITY STRUCTURES WITHIN AREAS AFFECTED BY THE WORK SHALL BE COORDINATED BY THE TOWN AND ADJUSTED TO NEW LINE AND GRADE AS DIRECTED BY THE RESIDENT ENGINEER. ANY UTILITY POLES AND/OR GUY POLES WITHIN AREAS AFFECTED BY THE WORK SHALL BE REMOVED AND RESET BY THE RESPECTIVE UTILITY COMPANY AND COORDINATED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ALTERATIONS TO UTILITIES NOT OWNED BY THE TOWN SHALL BE MADE BY THE RESPECTIVE UTILITY OWNERS.
3.

THE CONTRACTOR SHALL FIELD VERIFY CONDITIONS AND DIMENSIONS PRIOR TO CONSTRUCTION.
4.

ALL EXISTING PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATIONS ARE NOT GUARANTEED.
5.

ELEVATIONS SHOWN REFER TO NAVD 88 VERTICAL DATUM. THE COORDINATE INFORMATION INCLUDED ON THESE PLANS IS BASED UPON MASSACHUSETTS GRID SYSTEM, NAD 1983, AS DERIVED FROM GPS CONTROL COORDINATES PROVIDED BY COLER & COLANTONIO, INC. ON DECEMBER 6, 2010.
6.

BENCHMARK INFORMATION:

TEMPORARY BENCHMARKS SET:

TBM #1 (MAG SET)
ELEV = 233.584

TBM #2 (MAG SET)
ELEV = 221.034

TBM #3 (MAG SET)
ELEV = 220.763

TBM #5 (MAG SET)
ELEV = 220.073

TBM #6 (MAG SET)
ELEV = 220.665

TBM #7 (MAG SET)
ELEV = 219.242

TBM #8 (MAG)
ELEV = 218.534
7.

THE CONTRACTOR SHALL RE-ESTABLISH SURVEY CONTROL PRIOR TO BEGINNING WORK ON THIS CONTRACT AND MAINTAIN IT THROUGHOUT THE DURATION OF THE PROJECT. THIS WORK WILL BE CONSIDERED INCIDENTAL TO THE OVERALL PROJECT.

CONSTRUCTION

1.

AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DAMAGED BY THE CONTRACTOR'S OPERATIONS, INCLUDING STAGING AREAS, SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT NO ADDITIONAL CHARGE.
2.

THE CONTRACTOR IS HEREBY NOTIFIED THAT ADDITIONAL WORK WITHIN THE PROJECT LIMITS MAY BE PERFORMED BY OTHERS.
3.

JOINTS BETWEEN NEW HOT MIX ASPHALT, ROADWAY PAVEMENT, AND THE LOCATIONS OF SAW CUT FOR EXISTING PAVEMENT SHALL BE SEALED WITH HMA JOINT SEALANT AND BACKSANDED.
4.

ALL GRADING SHALL COMPLY WITH THE RULES AND REGULATIONS OF THE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD (MAAB) AND THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES (ADAAG), LATEST EDITION. IN CASE OF CONFLICT BETWEEN REGULATIONS, THE GUIDELINE PROVIDING GREATER ACCESS SHALL APPLY. WHEELCHAIR RAMP INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE MASSDOT WHEELCHAIR RAMP STANDARDS-LATEST EDITION AND THE PLANS.
5.

WHERE THE NEW CONSTRUCTION IS WITHIN THE EXISTING TRAVELED WAY, THE CONTRACTOR SHALL PERFORM WORK SO THAT INTERFERENCE TO BUSINESSES AND ABUTTERS, ON ACCOUNT OF THE CONSTRUCTION WORK, IS KEPT TO A MINIMUM. THE CONTRACTOR WILL NOT BE ALLOWED TO PARK EQUIPMENT, OR STOCKPILE MATERIAL ON THE TRAVELED WAYS WITHIN THE LAYOUT OVERNIGHT OR WHEN NOT IN USE. THE CONTRACTOR SHALL MAINTAIN SAFE AND REASONABLE ACCESS TO AND FROM ABUTTING PROPERTIES AT ALL TIMES AT NO ADDITIONAL COST.
6.

THE CONTRACTOR SHALL DISPOSE OF ALL WASTE MATERIAL IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS AT HIS OWN EXPENSE, OUTSIDE OF THE PROJECT LIMITS.
7.

CONTRACTOR SHALL BE RESPONSIBLE FOR INVESTIGATING AND CONFIRMING THAT ALL ITEMS TO BE REUSED ARE IN SERVICEABLE CONDITION. IF IT IS DEEMED THAT ANY ITEM IS NOT ABLE TO BE REUSED, THE CONTRACTOR SHALL NOTIFY THE OWNER IN WRITING AND INCLUDE ESTIMATED COSTS TO INSTALL NEW.
8.

THE MINIMUM MOUNTING HEIGHT OF POST-MOUNTED SIGNS, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE TOP OF THE CURB OR SIDEWALK, OR TO THE ELEVATION OF THE NEAR EDGE OF THE TRAVELED WAY, SHALL BE 7 FEET UNLESS OTHERWISE SPECIFIED ON THE PLANS.

UTILITIES

1.

WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR AND THE INFORMATION FURNISHED TO THE RESIDENT ENGINEER FOR RESOLUTION OF THE CONFLICT.
2.

THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF ELECTRIC, TELEPHONE, AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES AT NO ADDITIONAL COST TO THE OWNER. IF THE CONTRACTOR ADJUSTS UTILITY COVERS IT SHALL BE DEEMED PART OF THE WORK AND THERE WILL BE NO ADDITIONAL COMPENSATION.
3.

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE NECESSITY OF MAKING HIS OWN INVESTIGATION IN ORDER TO ASSURE THAT NO DAMAGE TO EXISTING STRUCTURES, DRAINAGE LINES, TRAFFIC SIGNAL CONDUITS, ETCETERA, WILL OCCUR.
4.

THE CONTRACTOR SHALL NOTIFY MASSACHUSETTS DIG SAFE AND PROCURE A DIG SAFE NUMBER FOR EACH LOCATION PRIOR TO DISTURBING EXISTING GROUND IN ANY WAY. THE TELEPHONE NUMBER OF THE DIG SAFE CALL CENTER IS 1-888-344-7233.
5.

NO EXISTING PUBLIC UTILITY STRUCTURES SHALL BE CAPPED AND ABANDONED AND/OR DISMANTLED WITHOUT AUTHORIZATION FROM THE RESIDENT ENGINEER.
6.

DRAINAGE ELEVATIONS ARE PROVIDED FOR DESIGN PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY BY TEST PIT IF REQUIRED, THE LOCATIONS OF EXISTING UTILITIES WHICH MAY CONFLICT WITH THE PROPOSED DRAINAGE DESIGN. ANY FIELD ADJUSTMENTS REQUIRED WILL BE MADE AS APPROVED OR DIRECTED BY THE RESIDENT ENGINEER. ONLY AFTER THE CONTRACTOR VERIFIES ELEVATIONS FOR THE CONSTRUCTABILITY OF THE DRAINAGE SYSTEM SHALL ANY STRUCTURES BE ORDERED. ANY FIELD ADJUSTMENT TO LINE AND GRADE UP TO A DEPTH OF 5 FEET SHALL BE INCLUDED IN THE COST OF THE PIPE. PIPE EXCAVATION GREATER THAN 5 FEET WILL BE PAID UNDER CLASS B TRENCH EXCAVATION.
7.

CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE DRAINAGE GRATES, FRAMES, MANHOLE COVERS, AND CURB STOPS TO THE TOWN OF LEXINGTON.

PAVEMENT MARKINGS

1.

UNLESS OTHERWISE NOTED, ALL PAVEMENT MARKINGS, SIGNS AND OTHER TRAFFIC EQUIPMENT REMOVED OR DAMAGED AS A RESULT OF THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED IN ACCORDANCE WITH THE REQUIREMENTS OF MASSDOT HIGHWAY DIVISION.
2.

CONTRACTOR SHALL REMOVE ALL PAVEMENT MARKINGS WHICH CONFLICT WITH PROPOSED PAVEMENT MARKINGS. THE METHOD OF REMOVAL SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF MASSDOT. BLACK PAINT OR TAPE SHALL NOT BE USED.

TRAFFIC SIGNAL MAINTENANCE

1.

CONTRACTOR IS RESPONSIBLE FOR ASSURING THAT ALL TRAFFIC SIGNAL OPERATIONS ARE MAINTAINED THROUGHOUT CONSTRUCTION.

TEMPORARY TRAFFIC CONTROL

1.

THE TEMPORARY TRAFFIC CONTROL PLANS DEPICT IN SCHEMATIC FORM, THE ELEMENTS OF AN APPROACH TO THE LAYOUT AND PLANNING OF THE WORK DURING THE PROGRESS OF THE CONSTRUCTION OPERATIONS. THE PREPARER OF THESE PLANS HAS NO ROLE IN THE OVERSIGHT OR OTHERWISE IN THE IMPLEMENTATION OF THESE PLANS.
2.

CONTRACTOR SHALL SUBMIT TO THE RESIDENT ENGINEER TRAFFIC MANAGEMENT PLANS FOR REVIEW AND APPROVAL BY THE RESIDENT ENGINEER. CONTRACTOR SHALL COORDINATE THE CONSTRUCTION EFFORT WITH OTHER PROJECTS IN THE VICINITY IN ORDER TO MINIMIZE POTENTIAL TRAFFIC AND PARKING IMPACTS.
3.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR TRAFFIC MANAGEMENT AND TO COMPLY WITH CONDITIONS OUTLINED WITHIN THE SPECIFICATIONS AND MASSDOT HIGHWAY DIVISION STANDARD DETAILS AND DRAWINGS FOR THE DEVELOPMENT OF TRAFFIC MANAGEMENT PLANS MANUAL.
4.

THE TEMPORARY TRAFFIC CONTROL PLANS CONTAINED HEREIN ARE GIVEN AS A GUIDE FOR TYPICAL WORK ZONE TRAFFIC CONTROL APPLICATIONS FOR THE TYPES OF WORK ANTICIPATED FOR THIS PROJECT. THEY ARE NOT INTENDED TO COVER ALL POSSIBLE CONSTRUCTION OPERATIONS WHICH THE CONTRACTOR MAY CHOOSE TO EMPLOY. WORK ZONE TRAFFIC CONTROL FOR OTHER CONSTRUCTION OPERATIONS OR OTHER TRAFFIC SITUATIONS IF APPLICABLE SHALL BE IN ACCORDANCE WITH THE CURRENT M.U.T.C.D. AND AS APPROVED OR DIRECTED BY RESIDENT ENGINEER.

TEMPORARY TRAFFIC CONTROL (CONT')

5.

LANE RESTRICTIONS (OTHER THAN ACTIVE WORK ZONES) MAY NOT REMAIN OVERNIGHT OR DURING NON-WORKING HOURS AND MUST BE REMOVED BY THE END OF EACH WORKING TIME RESTRICTION. AFTER EACH WORKING DAY, TRAFFIC CONTROL DEVICES THAT ARE NOT REQUIRED SHALL BE MOVED OFF THE ROADWAY OR FULL DEPTH CONSTRUCTION AREA AND PLACED SO AS NOT TO IMPEDE PEDESTRIAN AREAS, ABUTTER ACCESS OR CAUSE CONFUSION TO ROADWAY USERS. IN CERTAIN CIRCUMSTANCES, AND ONLY WITH THE APPROVAL OF TOWN OF LEXINGTON, CAN LANE RESTRICTIONS REMAIN OVERNIGHT. REFLECTORIZED DRUMS MAY BE FITTED WITH STEADY BURN AND/OR FLASHING WARNING LIGHTS AT ONLY THE RESIDENT ENGINEER'S DIRECTION.
6.

PLACE ALL CONSTRUCTION SIGNING, TRAFFIC CONTROL DEVICES AND TEMPORARY PAVEMENT MARKINGS FOR EACH PHASE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
7.

THESE PLANS ARE NOT INTENDED TO LIMIT THE CONTRACTOR'S RIGHT TO SCHEDULE THE WORK BUT TO OUTLINE ONE WAY OF PROGRESSING. THE CONTRACTOR IS EXPECTED TO USE KNOWLEDGE AND EXPERIENCE TO PERFORM THE WORK IN THE MOST EFFICIENT MANNER IN COMPLIANCE WITH THE DRAWING AND SPECIFICATIONS AND THE REQUIREMENTS OF THE INDIVIDUAL AGENCIES AND ABUTTERS.
8.

CONTRACTOR SHALL SECURE WORK AREAS ACCORDING TO CURRENT CONDITIONS TO ENSURE PUBLIC SAFETY AND CONVENIENCE. THIS SHALL INCLUDE ENSURING THAT ALL EXCAVATIONS ARE PROTECTED AT ALL TIMES AND WHEN WORK SHIFT IS COMPLETED.
9.

THE CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL BY THE RESIDENT ENGINEER AND THE DESIGNER, TEMPORARY TRAFFIC CONTROL PLANS FOR ANY WORK OUTSIDE THE WORK ZONES INDICATED IN THESE DRAWINGS, INCLUDING ALTERNATIVE PHASING OR MODIFICATION OF ANY ASPECT OF THE TEMPORARY TRAFFIC CONTROL PLANS OR CONSTRUCTION STAGING. THE CONTRACTOR SHALL BEAR RESPONSIBILITY FOR THE SUBMISSION AND REVIEW OF ALTERNATIVE PLANS, AT NO ADDITIONAL COST.
10.

EXISTING CONDITIONS ARE FOR CONTRACTOR INFORMATION ONLY AND ARE EXISTING CONDITIONS AT THE TIME OF DESIGN. THE CONTRACTOR SHALL VERIFY, AS NECESSARY, ACTUAL FIELD CONDITIONS AT TIME OF CONSTRUCTION.
11.

TYPICAL DAYTIME WORK HOURS ARE FROM 9:00 AM TO 3:30 PM ON WEEKDAYS, UNLESS OTHERWISE PERMITTED BY THE TOWN. WORK SHALL NOT BE PERFORMED THE DAY BEFORE, OR THE DAY AFTER, A HOLIDAY WEEKEND, UNLESS OTHERWISE PERMITTED BY THE TOWN. REFER TO TEMPORARY TRAFFIC CONTROL PLANS, SPECIFICATIONS, AND PERMITS FOR MODIFICATION TO ALLOWABLE WORK PERIODS. ALL WORK SCHEDULES, HOWEVER, SHALL BE PRE-APPROVED BY THE TOWN PRIOR TO BEGINNING WORK. WORK NECESSARY OUTSIDE OF THESE NORMAL WORK HOURS BECAUSE OF TRAFFIC CONDITIONS, AS NOTED IN THE PLANS OR SPECIFICATIONS, SHALL BE APPROVED BY THE RESIDENT ENGINEER.
12.

CONTRACTOR SHALL PROVIDE DETAILS FOR TRAFFIC CONTROL AS DIRECTED BY THE RESIDENT ENGINEER AND IN ACCORDANCE WITH THE SPECIFICATIONS. CONTRACTOR SHALL BE GUIDED BY TEMPORARY TRAFFIC CONTROL LAYOUTS PROVIDED FOR SPECIFIC LOCATIONS, AND BY TYPICAL LAYOUTS AT ALL OTHER LOCATIONS. TYPICAL LAYOUTS SHALL CONFORM TO PART 6 OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
13.

WORK ZONES INDICATED ON THE TEMPORARY TRAFFIC CONTROL PLANS ARE INTENDED FOR THE DURATION OF THE WORK WITHIN THE ZONES ONLY AND SHALL BE RESTORED TO CONDITIONS ACCEPTABLE TO THE TOWN AT COMPLETION OF THE WORK INDICATED.
14.

CONTRACTOR SHALL COORDINATE WITH THE TOWN CONCERNING ALL SCHEDULED SPECIAL EVENTS WITHIN THE LIMITS OF WORK.
15.

SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY, CHANNELIZING DEVICES, BARRIERS, AND CRASH ATTENUATORS MUST PASS THE CRITERIA SET FORTH IN THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
16.

CONTRACTORS SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS CONDUIT INSTALLATION, EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT, AND SIMILAR OPERATIONS.
17.

DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE RESIDENT ENGINEER.
18.

MAXIMUM SPACING OF TRAFFIC DEVICES IN A TAPER (DRUMS OR CONES) IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.
19.

MINIMUM LANE WIDTH IS TO BE 11 FEET UNLESS OTHERWISE SHOWN. MINIMUM LANE WIDTH TO BE MEASURED FROM THE EDGE OF DRUMS OR MEDIAN BARRIER.

CHANNELIZATION:

1.

CHANNELIZATION SHALL BE ACCOMPLISHED THROUGH THE USE OF REFLECTORIZED PLASTIC DRUMS IN ACCORDANCE WITH THE CURRENT M.U.T.C.D. ALL LANE TAPERS SHALL BE IN ACCORDANCE WITH THE CURRENT M.U.T.C.D.
2.

ALL DRUMS SHALL BE PLACED AND MOVED AS NECESSARY TO MAINTAIN ADEQUATE ABUTTER ACCESS AT ALL TIMES. WORK MAY REQUIRE ADDITIONAL SIGNS, DRUMS, AND OTHER TRAFFIC CONTROL DEVICES.
3.

THE MAXIMUM SPACING BETWEEN CHANNELIZATION DEVICES (DRUMS OR CONES) SHALL BE APPROXIMATELY EQUAL IN FEET TO THE POSTED SPEED LIMIT.
4.

METAL DRUMS ARE PROHIBITED AS CHANNELIZATION DEVICES.

LEXINGTON
WORTHEN ROAD AT MASSACHUSETTS AVENUE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	3	29
HSH PROJECT FILE NO. 2016212.00			

GENERAL NOTES

TEMPORARY TRAFFIC CONTROL (CONT')

GRADE DIFFERENCES:

1.

WHERE THERE IS A LONGITUDINAL DIFFERENCE IN ELEVATION BETWEEN EXISTING PAVEMENT AND COLD PLANED OR NEW PAVEMENT, THE CONTRACTOR SHALL PATCH A TEMPORARY HMA WEDGE WITH A 12:1 (OR FLATTER) SLOPE FOR A SMOOTH TRANSITION.
2.

CROSS-SECTIONAL GRADE DIFFERENCED IN EXCESS OF 2" DURING NON-WORKING HOURS WILL REQUIRE DELINEATION BY USE OF REFLECTORIZED DRUMS, OR CONES AS DIRECTED BY THE RESIDENT ENGINEER.
3.

CROSS-SECTIONAL GRADE DIFFERENCES IN EXCESS OF 4" DURING NON-WORKING HOURS SHALL BE PROTECTED BY BACKFILLING WITH A WEDGE OF EARTHWORK TO BE COMPACTED AT 4:1 SLOPE AND WILL ALSO REQUIRE DELINEATION BY USE OF DRUMS.
4.

A MINIMUM SLOPE OF 4:1 MUST BE MAINTAINED AFTER WORKING HOURS DURING SUBBASE AND BASE COURSE INSTALLATION ALONG EDGE OF THE TRAVEL WAY. A MINIMUM SLOPE OF 8:1 MUST BE MAINTAINED ON ALL ABUTTER ACCESS DRIVES AND A MINIMUM SLOPE OF 12:1 MUST BE MAINTAINED ON ALL SIDEWALKS.

CONSTRUCTION SIGNING:

1.

LOCATIONS OF SIGNS SHOWN ARE APPROXIMATE. EXACT LOCATION SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD. THE CONTRACTOR SHALL ENSURE THAT SIGNS ARE PLACED IN ACCORDANCE WITH THE CURRENT M.U.T.C.D.
2.

EXISTING SIGNING WHICH CONFLICTS WITH PROPOSED CONSTRUCTION TRAFFIC MANAGEMENT SIGNING SHALL BE REMOVED AND STACKED OR COVERED AND RESTORED AT THE END OF THE WORK.
3.

ALL SIGNS SHALL BE COVERED OR REMOVED WHEN CONDITION IS NOT IN EFFECT.
4.

THE MINIMUM MOUNTING HEIGHT OF POST-MOUNTED SIGNS, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE TOP OF THE CURB OR SIDEWALK, OR TO THE ELEVATION OF THE NEAR EDGE OF THE TRAVELED WAY, SHALL BE 7 FEET UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PAVEMENT MARKINGS:

1.

UNLESS OTHERWISE NOTED, ALL PAVEMENT MARKINGS, SIGNS AND OTHER TRAFFIC EQUIPMENT REMOVED OR DAMAGED AS A RESULT OF THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED IN ACCORDANCE WITH THE REQUIREMENTS OF THE MUTCD.
2.

CONTRACTOR SHALL INSTALL, RENEW AND MAINTAIN ALL TRAFFIC CONTROL DEVICES INCLUDING PAVEMENT MARKINGS AS SHOWN ON THE DRAWINGS, IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND AS REQUIRED BY THE RESIDENT ENGINEER.
3.

CONTRACTOR SHALL REMOVE ALL PAVEMENT MARKINGS WHICH CONFLICT WITH PROPOSED PAVEMENT MARKINGS. BLACK PAINT OR TAPE SHALL NOT BE USED. THE METHOD OF REMOVAL SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF MASSDOT.
4.

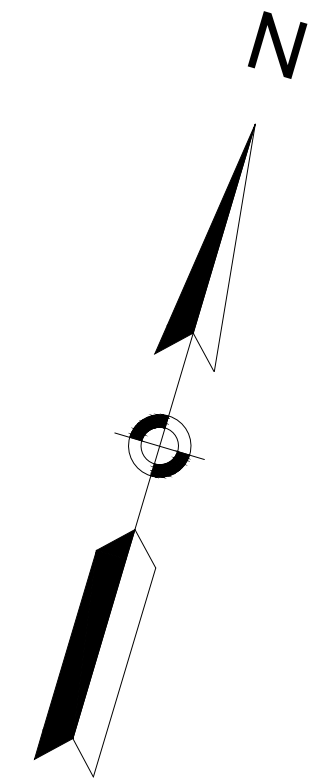
ALL TEMPORARY PAVEMENT MARKINGS SHALL BE MAINTAINED THROUGHOUT THE ENTIRE SEQUENCE. ALL EXISTING MARKING WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND REPLACED AS INDICATED ON THE PAVEMENT MARKING PLANS.

LEXINGTON
WORTHEN ROAD AT MASSACHUSETTS AVENUE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	4	29

SHS PROJECT FILE NO. 2016212.00

KEY PLAN



MASSACHUSETTS AVENUE
(PUBLIC-VARIABLE)

WORTHEN ROAD
(PUBLIC - 70' WIDTH)

MASSACHUSETTS AVENUE
(PUBLIC-VARIABLE)

PARKER STREET
(PUBLIC - 50' WIDTH)

WORTHEN ROAD
(PUBLIC - 70' WIDTH)

LINCOLN STREET
(PUBLIC-VARIABLE)

14 16 20 18 23 24

15 17 21 19

15 17 21 19

PROJECT END
STA 206+38
N2989015.6161
E727098.6710

PROJECT END
STA 108+00
N2988892.9957
E727434.3011

PROJECT BEGIN
STA 100+80
N2988694.5848
E726742.8304

PROJECT BEGIN
STA 201+00
N2988478.1253
E727116.8104

100+00 101 102 103 PI +85.94 104 105 106 PC +82.44 107 PRC +20.99 108 109+00

PC +83.11

SB/DH

SB/DH

203

202

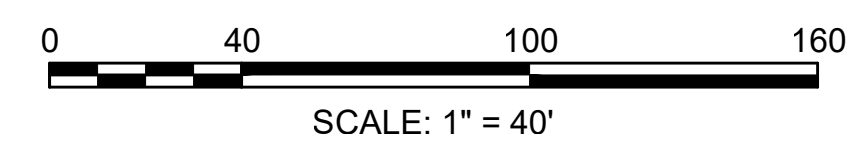
204

205

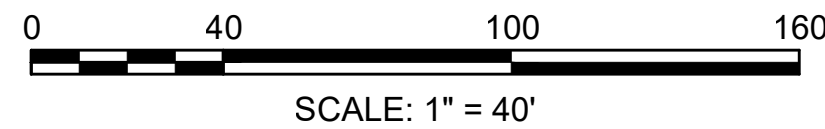
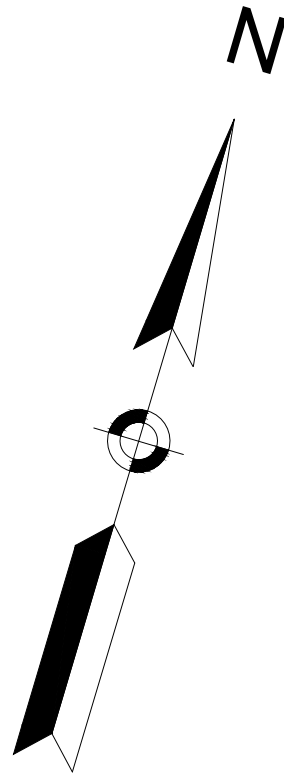
206

207+00

STONE BOUND W/ DRILLHOLE



	CONSTRUCTION PLAN
	CURB TIE & GRADING PLAN
	UTILITY PLAN
	TRAFFIC SIGN AND PAVE MARKS
	TRAFFIC SIGNAL PLANS

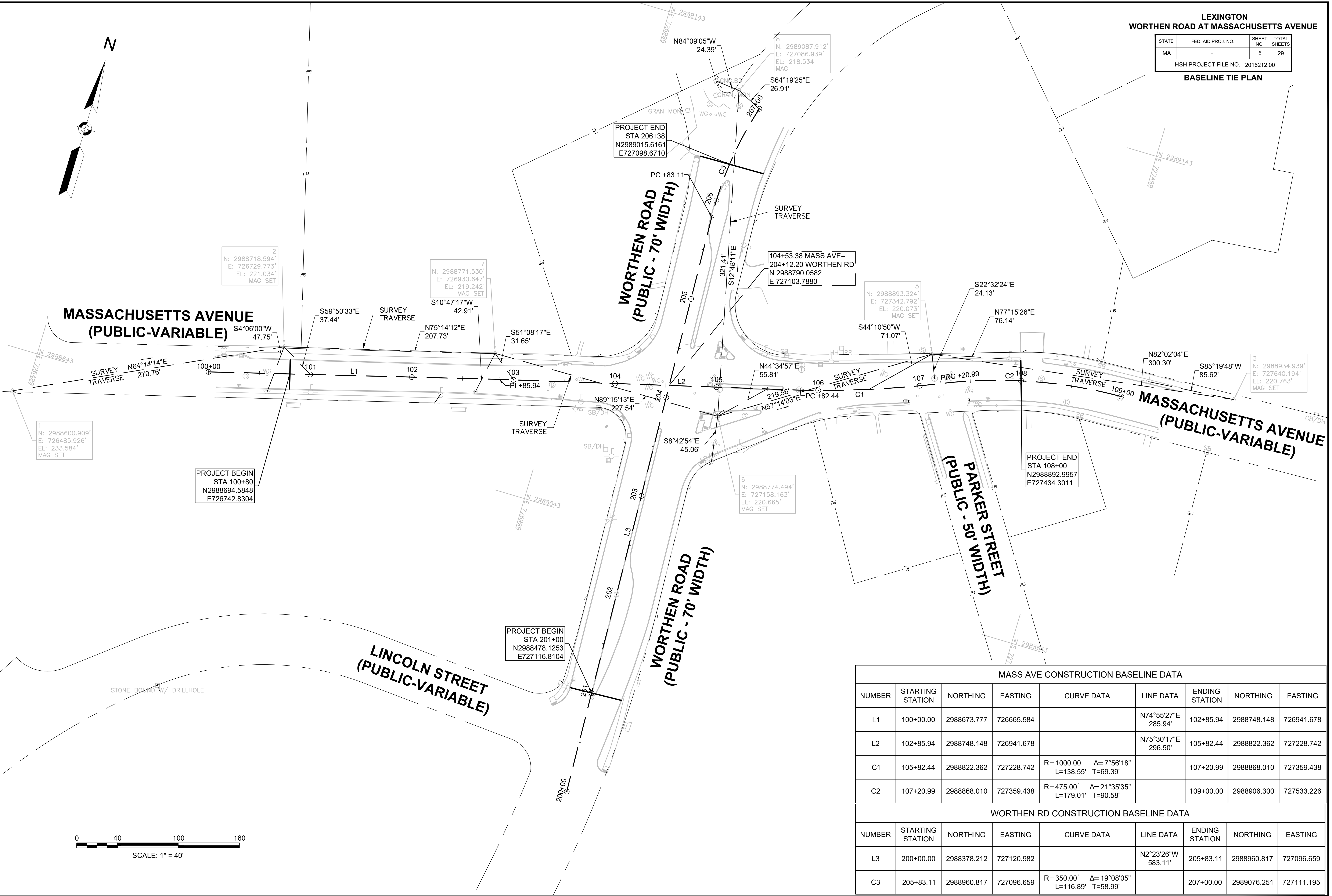


LEXINGTON
WORTHEN ROAD AT MASSACHUSETTS AVENUE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	5	29

HSH PROJECT FILE NO. 2016212.00

BASELINE TIE PLAN



MASS AVE CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	100+00.00	2988673.777	726665.584		N74°55'27"E 285.94'	102+85.94	2988748.148	726941.678
L2	102+85.94	2988748.148	726941.678		N75°30'17"E 296.50'	105+82.44	2988822.362	727228.742
C1	105+82.44	2988822.362	727228.742	R = 1000.00' Δ= 7°56'18" L=138.55' T=69.39'		107+20.99	2988868.010	727359.438
C2	107+20.99	2988868.010	727359.438	R = 475.00' Δ= 21°35'35" L=179.01' T=90.58'		109+00.00	2988906.300	727533.226
WORTHEN RD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L3	200+00.00	2988378.212	727120.982		N2°23'26"W 583.11'	205+83.11	2988960.817	727096.659
C3	205+83.11	2988960.817	727096.659	R = 350.00' Δ= 19°08'05" L=116.89' T=58.99'		207+00.00	2989076.251	727111.195

LEXINGTON
WORTHEN ROAD AT MASSACHUSETTS AVENUE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	6	29
HSH PROJECT FILE NO. 2016212.00			

TYPICAL SECTIONS

PAVEMENT NOTES:
MASSACHUSETTS AVE AND WORTHEN RD

PROPOSED PAVEMENT MILLING AND OVERLAY:

SURFACE COURSE: 1.75" STANDARD HMA MARSHALL MIX

PAVEMENT MILLING: VARIABLE DEPTH (1.75" MINIMUM)

FULL DEPTH RECONSTRUCTION:

SURFACE COURSE: 1.75" STANDARD HMA MARSHALL MIX OVER

INTERMEDIATE COURSE: 1.75" STANDARD HMA MARSHALL MIX OVER

BASE COURSE: 4" STANDARD HMA MARSHALL MIX OVER

SUB-BASE: 4" DENSE GRADED CRUSHED STONE BASE COURSE OVER
8" GRAVEL BORROW TYPE B OR EXISTING SUB-BASE AS DIRECTED BY THE RESIDENT ENGINEER

FULL DEPTH CONSTRUCTION LESS THAN 4' WIDE

SURFACE COURSE: 1.75" STANDARD HMA MARSHALL MIX OVER

INTERMEDIATE COURSE: 1.75" STANDARD HMA MARSHALL MIX OVER

BASE COURSE: 8" HES CEMENT CONCRETE BASE OVER

SUB-BASE: 8" GRAVEL BORROW TYPE B

CEMENT CONCRETE WHEELCHAIR RAMPS

SURFACE COURSE: 4" FIBER REINFORCED CEMENT CONCRETE SURFACE COURSE OVER

SUB-BASE: 8" GRAVEL BORROW TYPE B

HOT MIX ASPHALT DRIVEWAYS

SURFACE COURSE: 1.5" STANDARD HMA MARSHALL MIX OVER

INTERMEDIATE COURSE: 2.0" STANDARD HMA MARSHALL MIX OVER

SUB-BASE: 8" GRAVEL BORROW TYPE B

HOT MIX ASPHALT SIDEWALKS

SURFACE COURSE: 1.25" STANDARD HMA MARSHALL MIX OVER

INTERMEDIATE COURSE: 1.75" STANDARD HMA MARSHALL MIX OVER

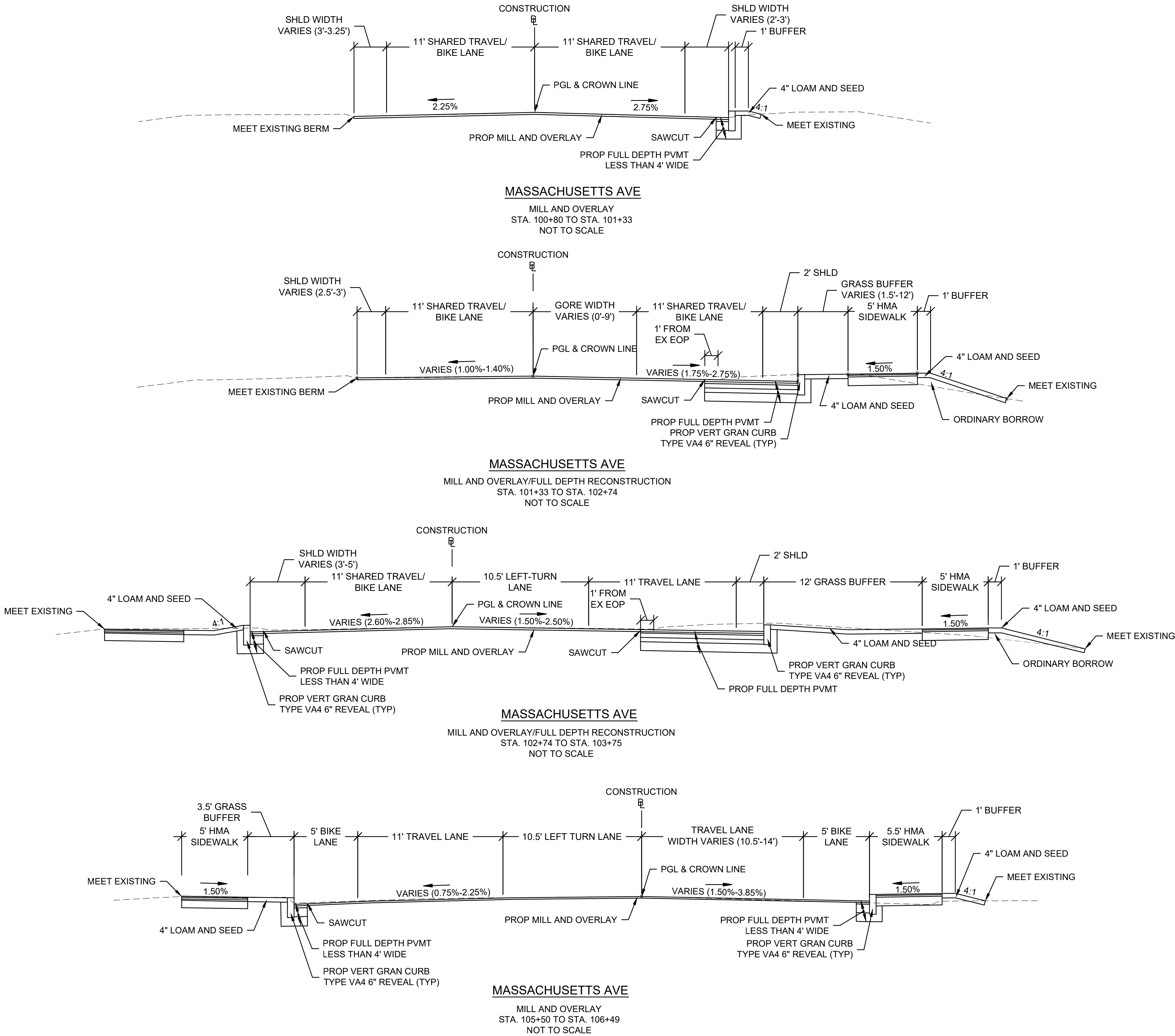
SUB-BASE: 8" GRAVEL BORROW TYPE B

NOTES: THE HOT MIX ASPHALT (HMA) WALKS AND DRIVES MAY BE SUPERPAVE HMA MIXTURES PAVED IN ACCORDANCE WITH SECTION 701 OF THE STANDARD SPECIFICATIONS WHICH SHALL BE THE BASIS FOR THE WORK AND PAID FOR UNDER ITEM 702. HMA WALKS AND ITEM 703. HMA DRIVES.

TACK COAT SHALL BE SPRAY APPLIED DOUBLE OVERLAP FOR UNIFORM COVERAGE AT 0.07 GAL/SY OVER MILLED SURFACE AND 0.05 GAL/SY OVER SMOOTH SURFACES (BASE AND INTERMEDIATE COURSES) PRIOR TO PAVING OVERLAY.

VARIABLE DEPTH PAVEMENT MILLING SHALL BE USED TO ACHIEVE THE CROSS SLOPES SHOWN ON THE CURB TIE AND GRADING PLANS.

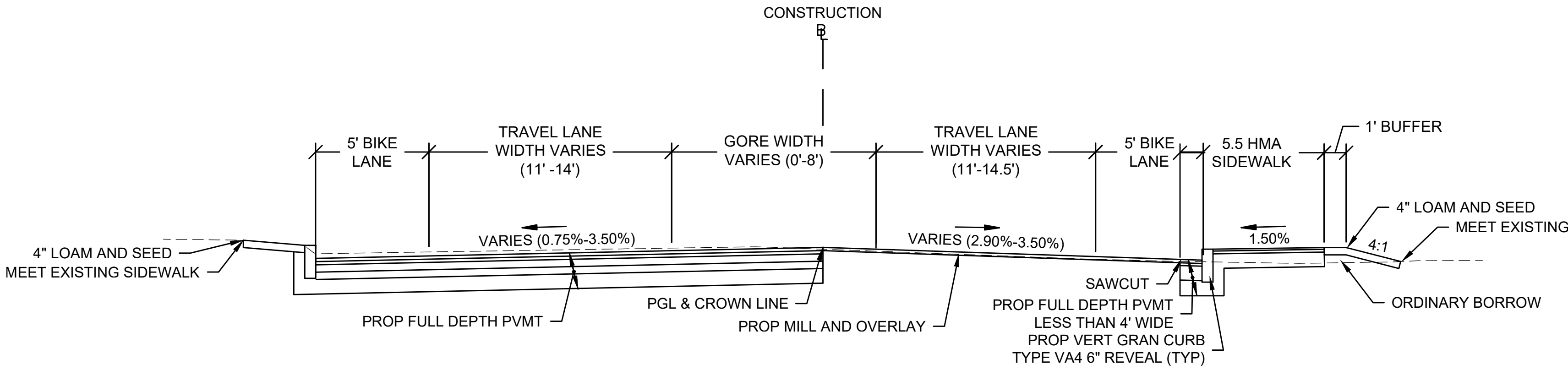
* = TOLERANCE FOR CONSTRUCTION ± 0.5% ON SIDEWALK SLOPES, DRIVEWAY SLOPES, AND WHEELCHAIR RAMPS.



LEXINGTON
WORTHEN ROAD AT MASSACHUSETTS AVENUE

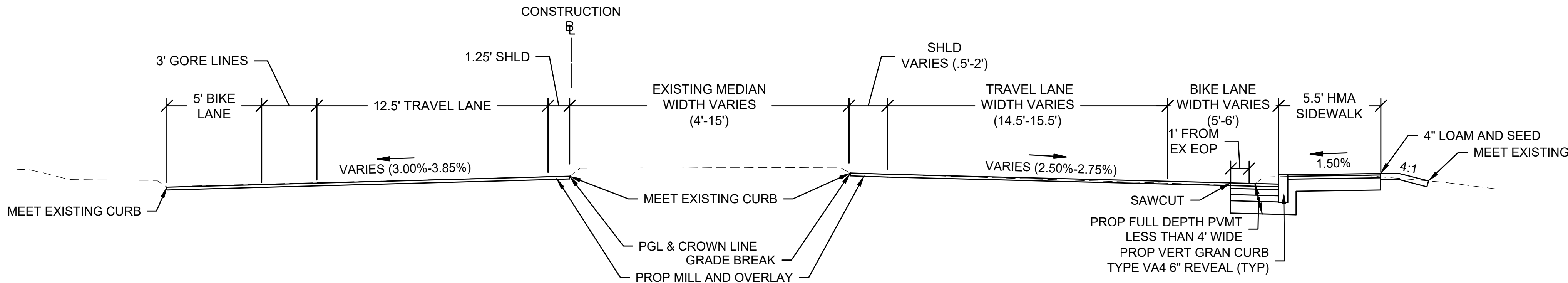
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	7	29
HSH PROJECT FILE NO. 2016212.00			

TYPICAL SECTIONS



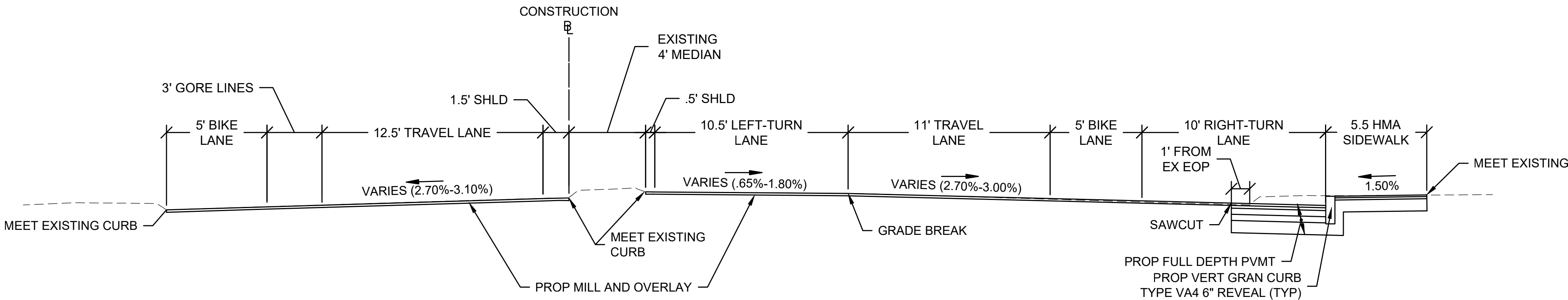
MASSACHUSETTS AVE

MILL AND OVERLAY
STA. 106+49 TO STA. 108+00
NOT TO SCALE



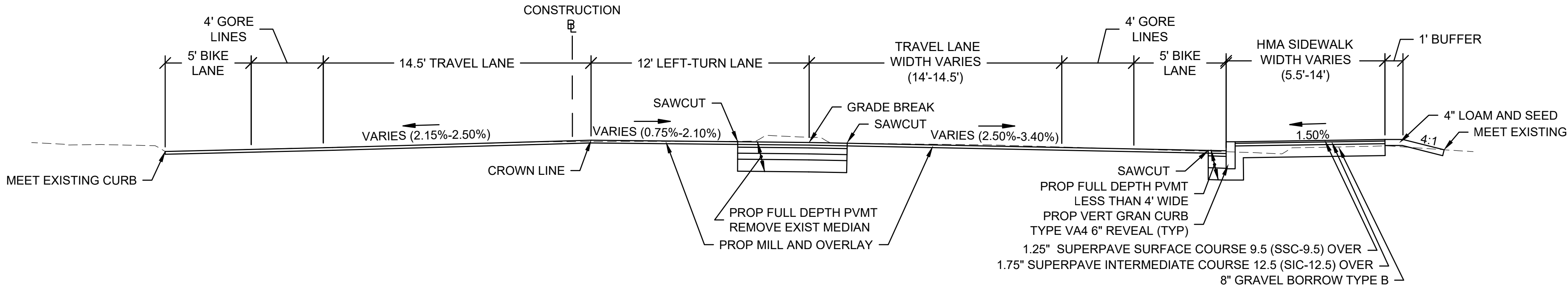
WORTHEN ROAD

MILL AND OVERLAY
STA. 201+00 TO STA. 202+42
NOT TO SCALE

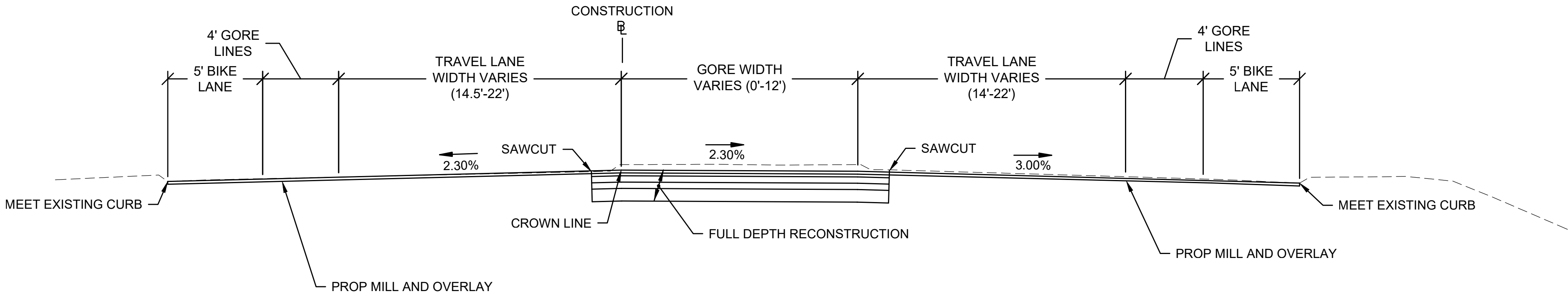


WORTHEN ROAD

MILL AND OVERLAY/FULL DEPTH RECONSTRUCTION
STA. 202+42 TO STA. 203+42
NOT TO SCALE



WORTHEN ROAD
MILL AND OVERLAY/FULL DEPTH RECONSTRUCTION
STA. 204+92 TO STA. 205+69
NOT TO SCALE

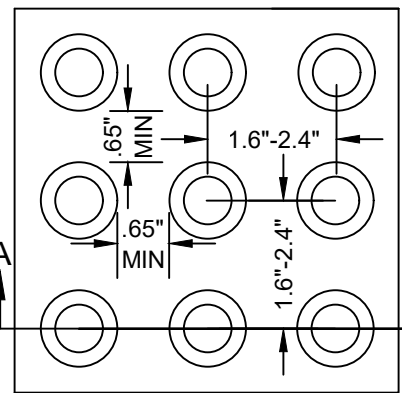
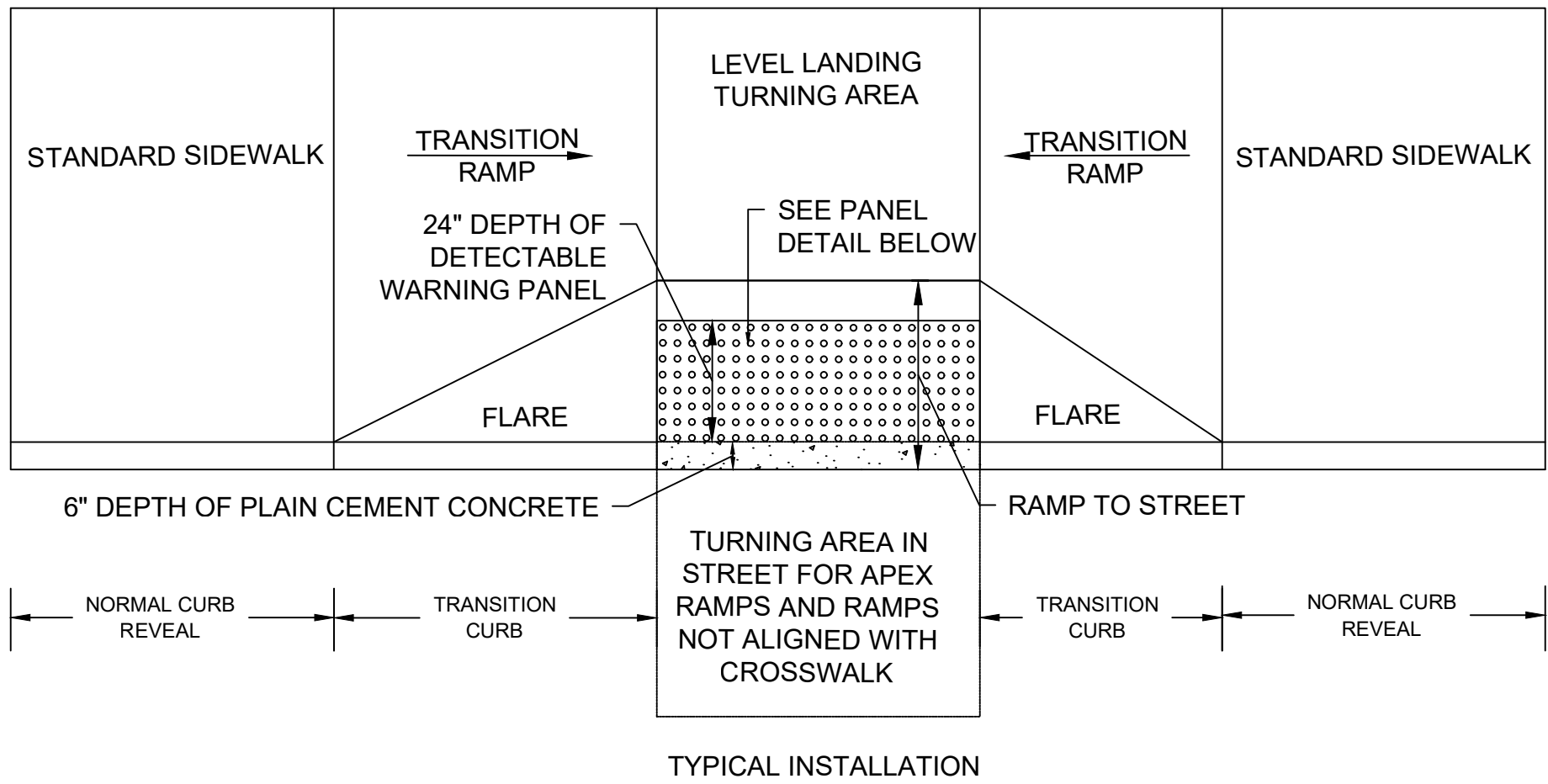


WORTHEN ROAD
MILL AND OVERLAY/FULL DEPTH RECONSTRUCTION
STA. 205+69 TO STA. 206+38
NOT TO SCALE

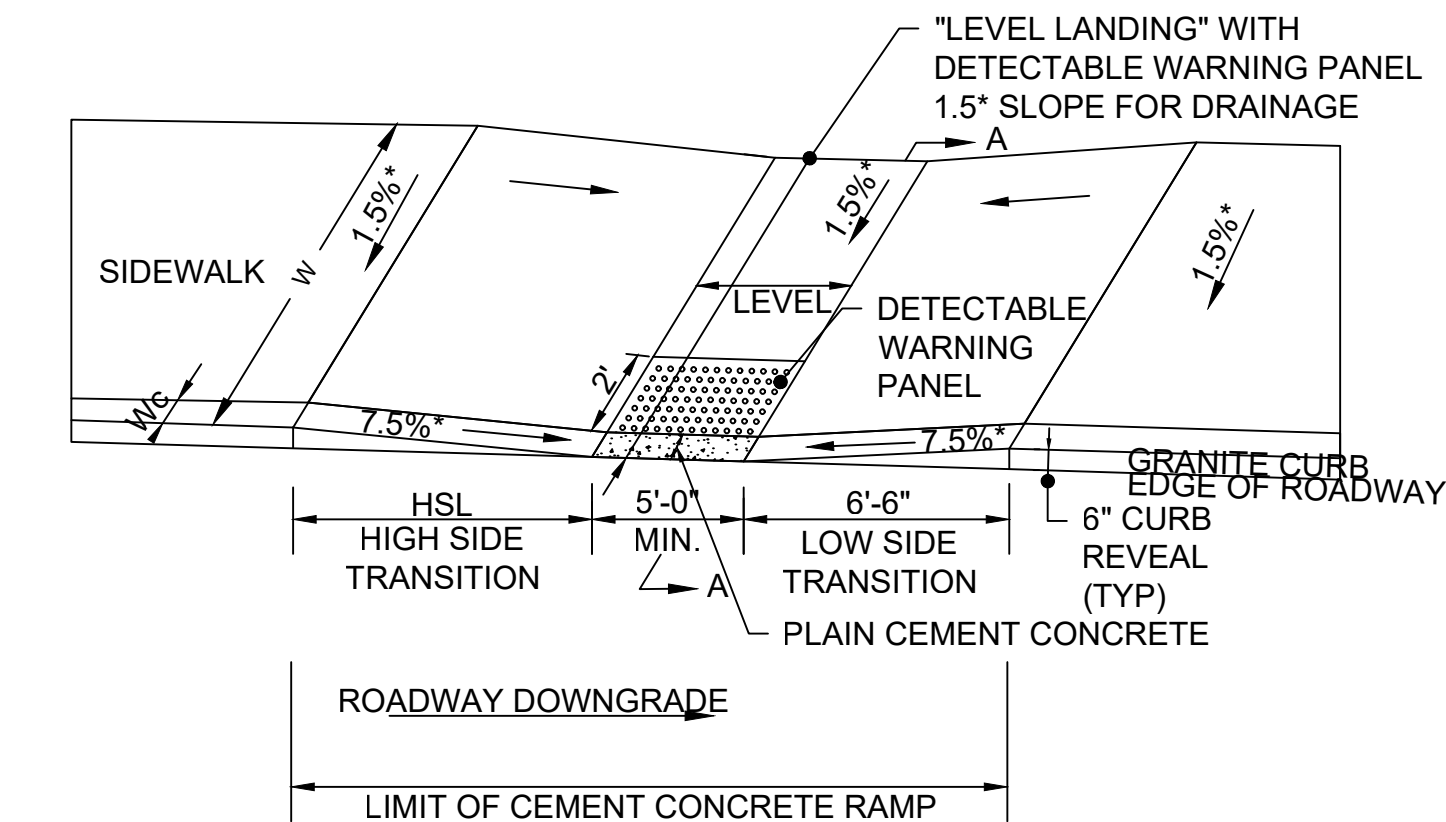
LEXINGTON
WORTHEN ROAD AT MASSACHUSETTS AVENUE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	9	29
HSH PROJECT FILE NO. 2016212.00			

CONSTRUCTION DETAILS



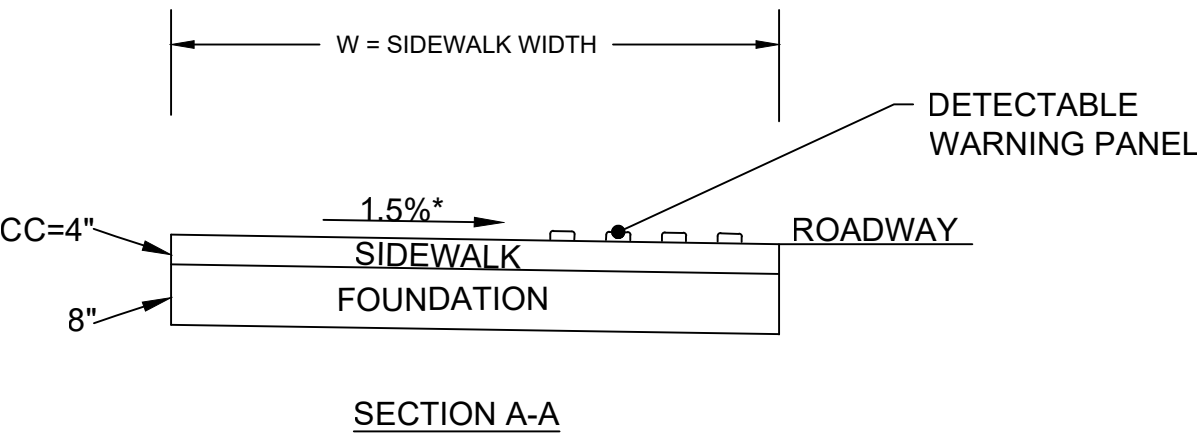
DETECTABLE WARNING PANEL FOR WHEELCHAIR RAMPS
AND STANDARD RAMP TECHNOLOGY
NOT TO SCALE



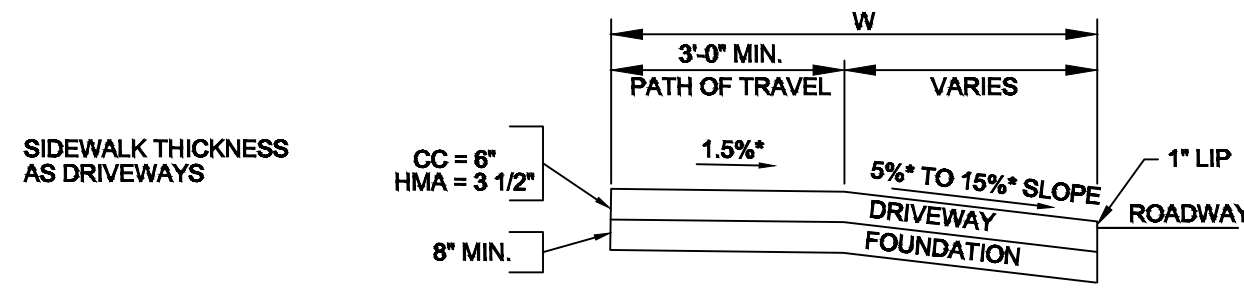
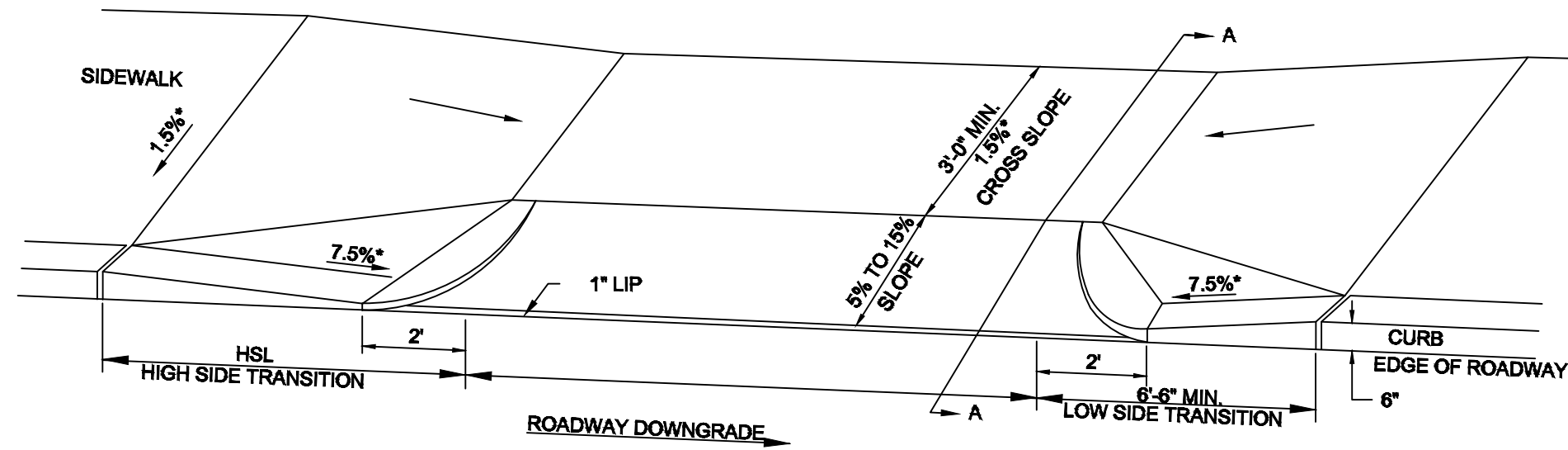
NOTE:
ROADWAY, GUTTER, AND FIRST 6" OF SIDEWALK TO BE ADJUSTED FOR FIELD
LEGEND CONDITIONS

HSL = HIGH SIDE TRANSITION LENGTH
W = SIDEWALK WIDTH
Wc = CURB WIDTH
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%

USABLE SIDEWALK WIDTH PER AAB = W-WC
USABLE SIDEWALK WIDTH PER AAB IS NOT TO
BE LESS THAN 4'0"

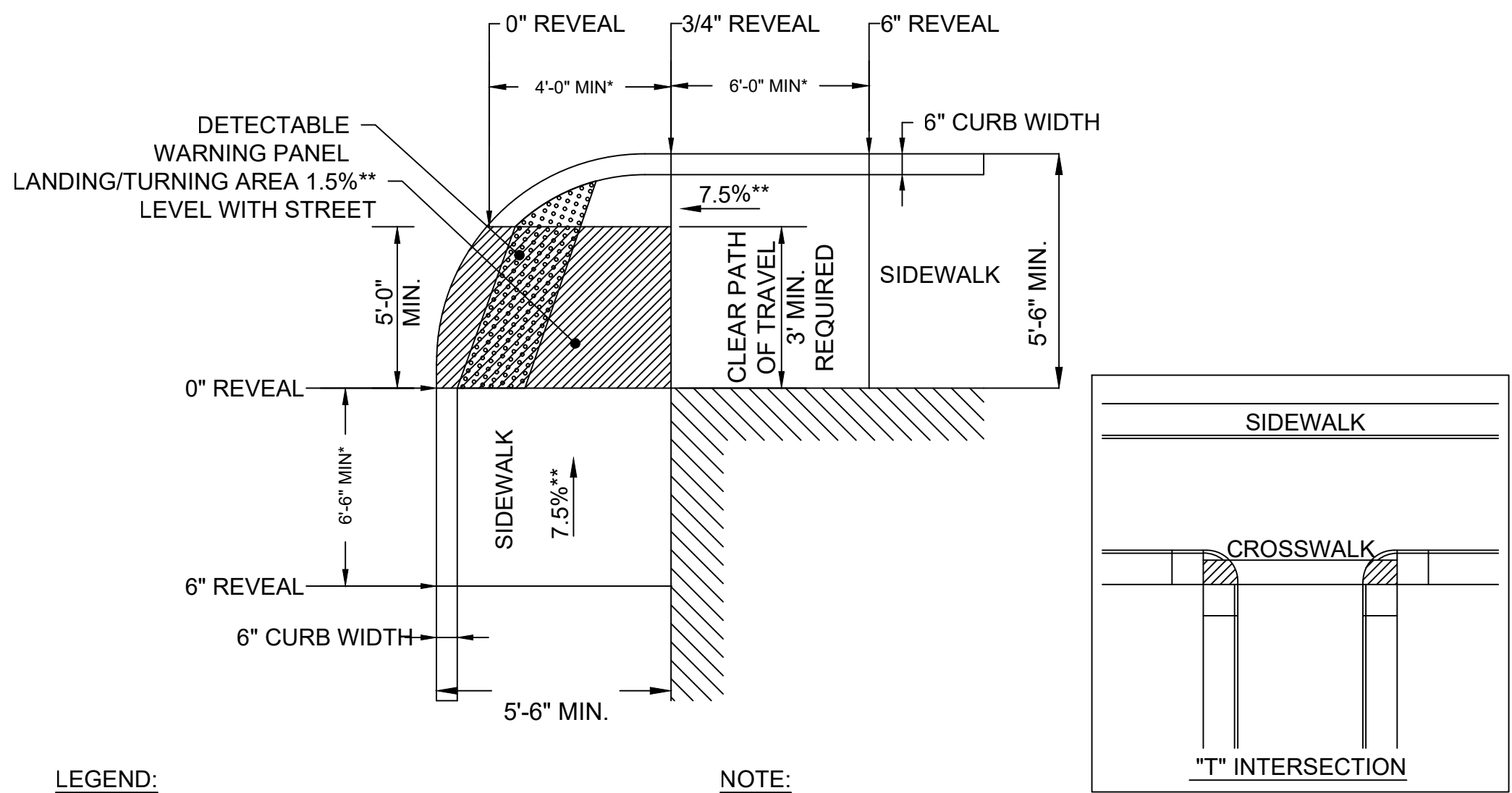


WHEELCHAIR RAMPS ON NARROW SIDEWALK
WITH DETECTABLE WARNING PANEL
NOT TO SCALE



LEGEND
HSL = HIGH SIDE TRANSITION LENGTH. SEE E 107.9.0
W = SIDEWALK WIDTH
* = TOLERANCE FOR CONSTRUCTION ±0.5%
CC = CEMENT CONCRETE
HMA = HOT MIX ASPHALT

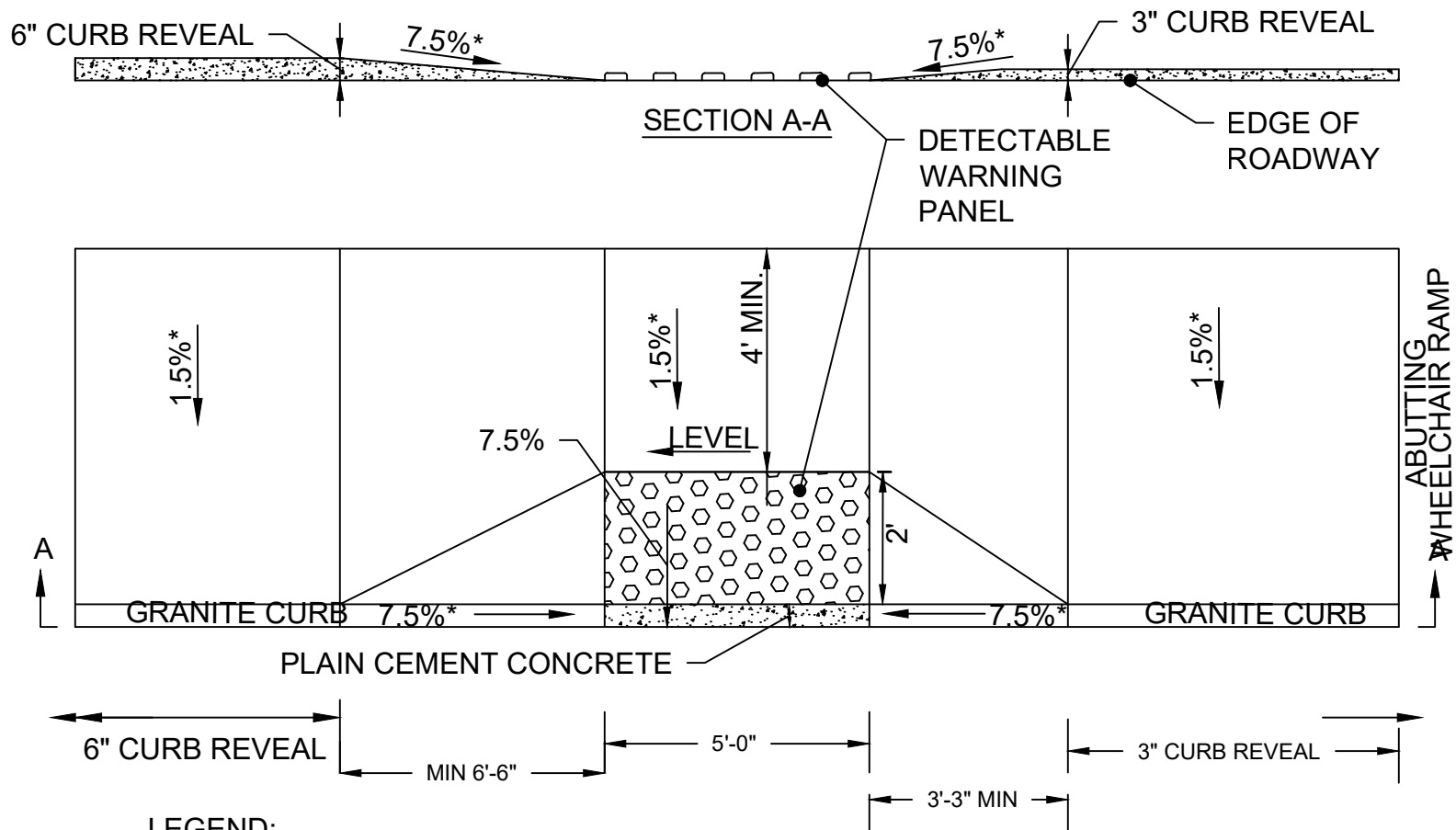
SIDEWALK THROUGH DRIVEWAYS WITH CURB
RETURNS 2' CURB CORNERS
NOT TO SCALE



LEGEND:
[Symbol] BUILDING OR OTHER UNALTERABLE CONDITION
* = TRANSITION LENGTH SHOWN IS MINIMUM
** = TOLERANCE FOR CONSTRUCTION ± 0.5%

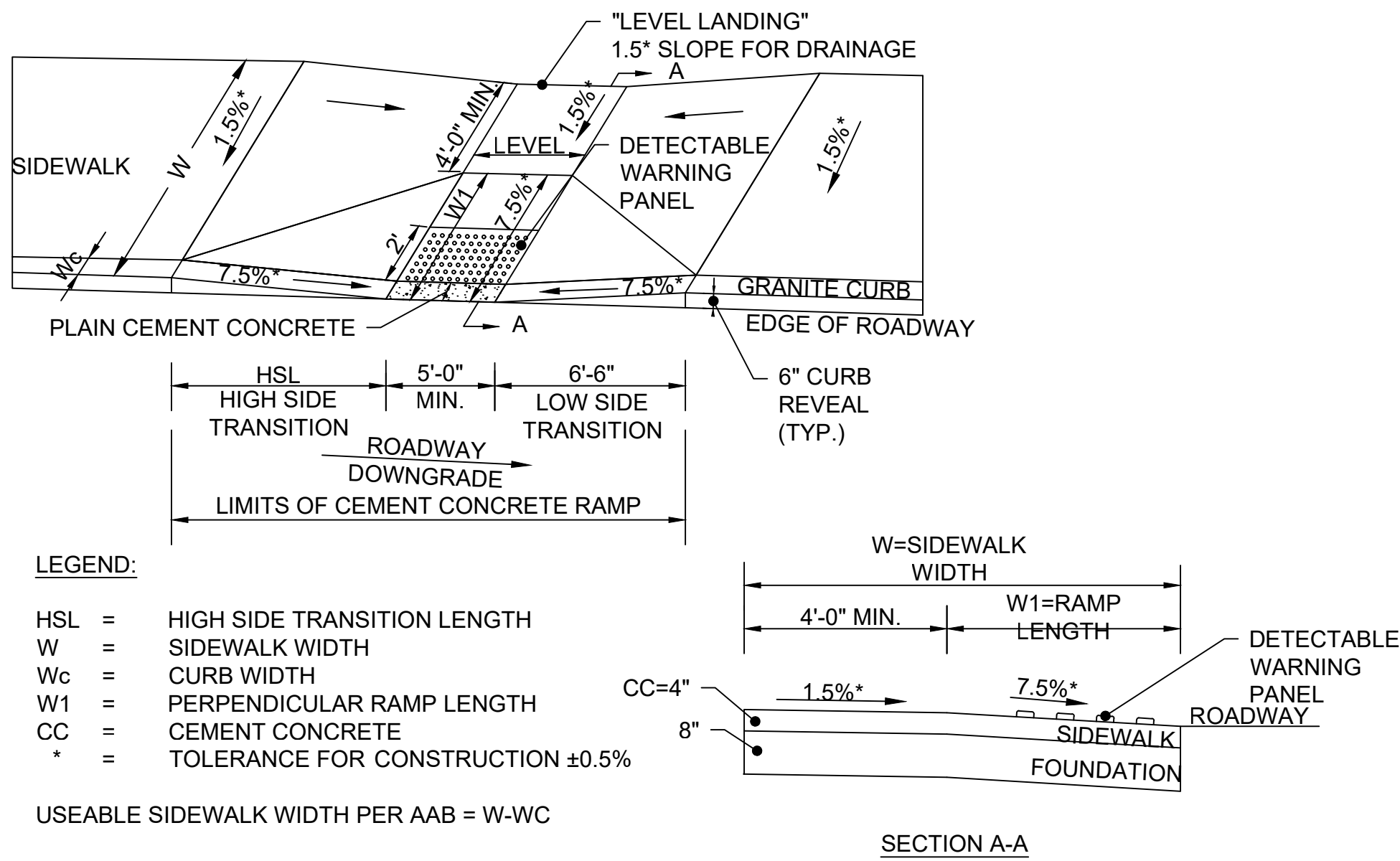
NOTE:
ROADWAY, GUTTER, AND FIRST 6" OF SIDEWALK
TO BE ADJUSTED FOR FIELD CONDITIONS

"T" INTERSECTION WHEELCHAIR RAMP
NOT TO SCALE



LEGEND:
* HSL = HIGH SIDE TRANSITION LENGTH
* = TOLERANCE FOR CONSTRUCTION ± 0.5%

WHEELCHAIR RAMP WITH 3-INCH CURB REVEAL
NOT TO SCALE



LEGEND:
HSL = HIGH SIDE TRANSITION LENGTH
W = SIDEWALK WIDTH
Wc = CURB WIDTH
W1 = PERPENDICULAR RAMP LENGTH
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%

USEABLE SIDEWALK WIDTH PER AAB = W-WC
RAMP LENGTH = W1 = W - 4'-0" MIN

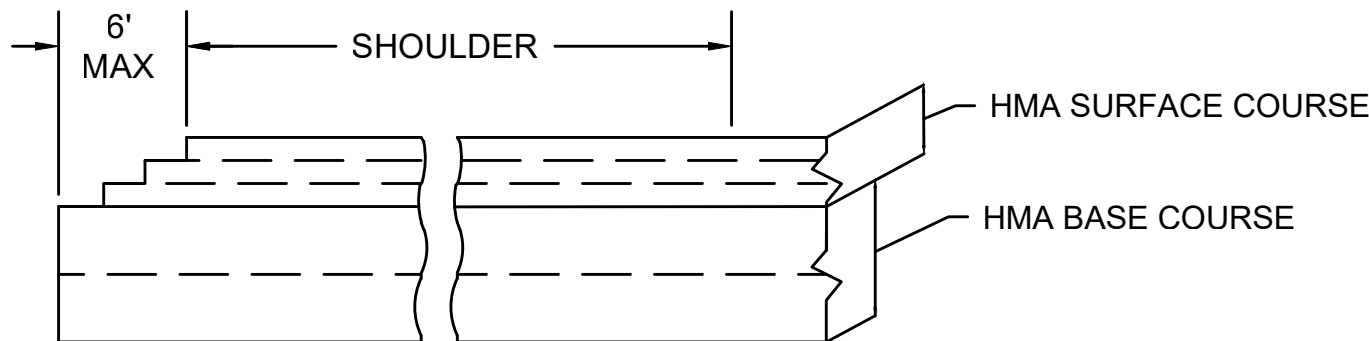
WHEELCHAIR RAMPS LESS THAN 12'-4" SIDEWALK
NOT TO SCALE

LEXINGTON
WORTHEN ROAD AT MASSACHUSETTS AVENUE

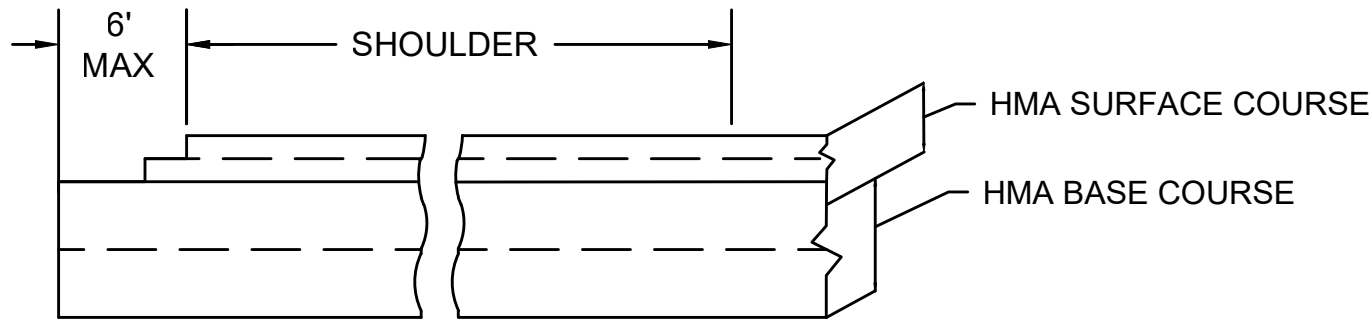
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	10	29

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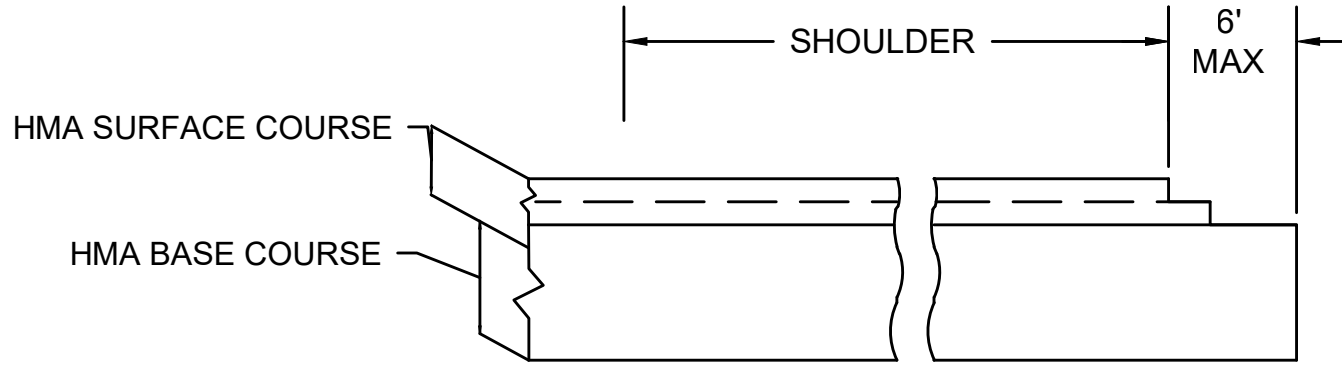
CONSTRUCTION DETAILS



3-LAYERED SURFACE AND 2-LAYERED BASE COURSE

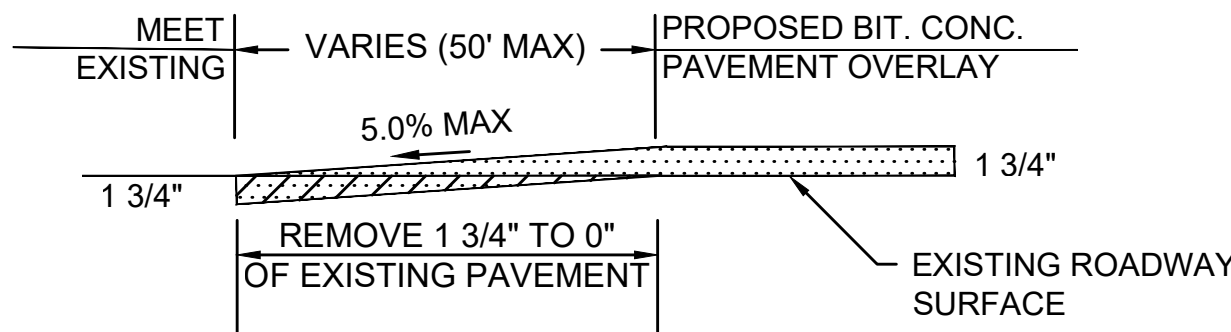


2-LAYERED SURFACE AND 2-LAYERED BASE COURSE

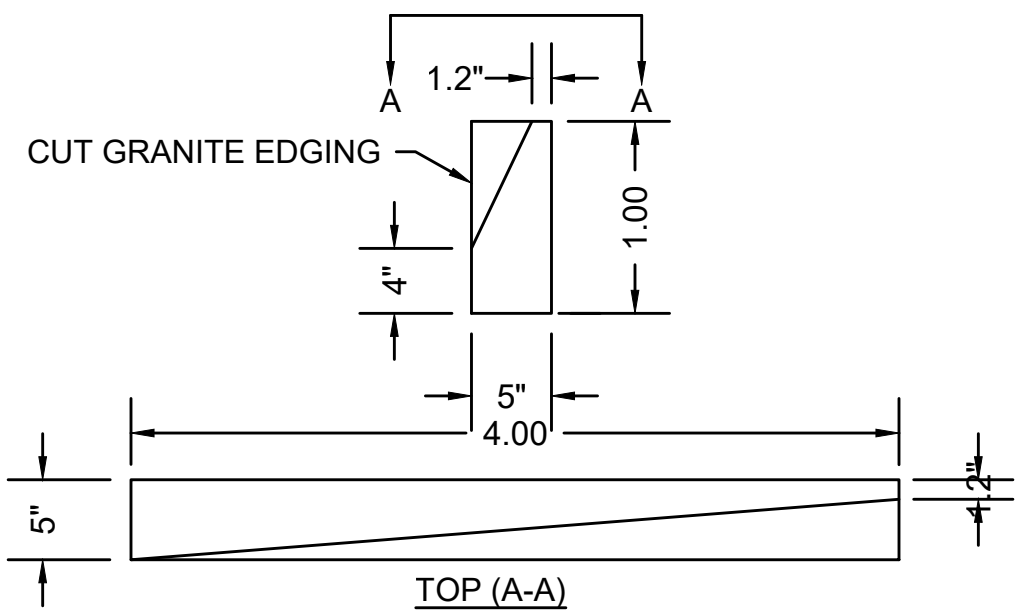


2-LAYERED SURFACE AND 1-LAYERED BASE COURSE

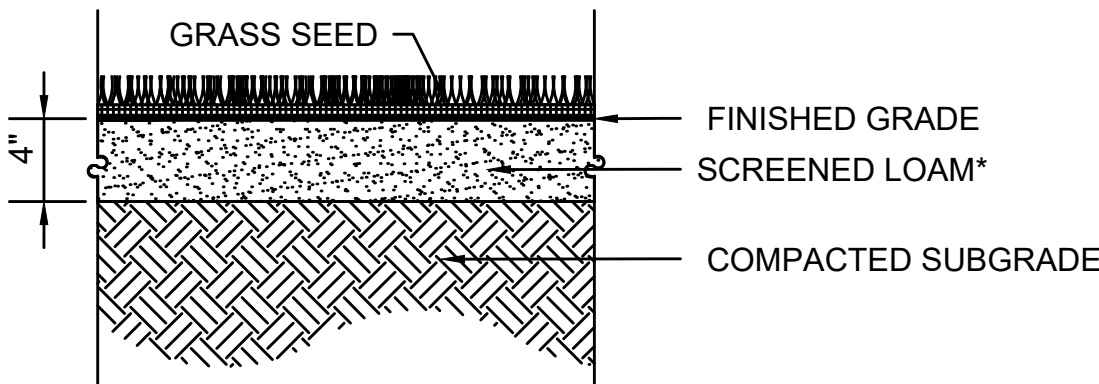
METHOD OF STEPPING SURFACE
AND BASE COURSE LAYERS
NOT TO SCALE



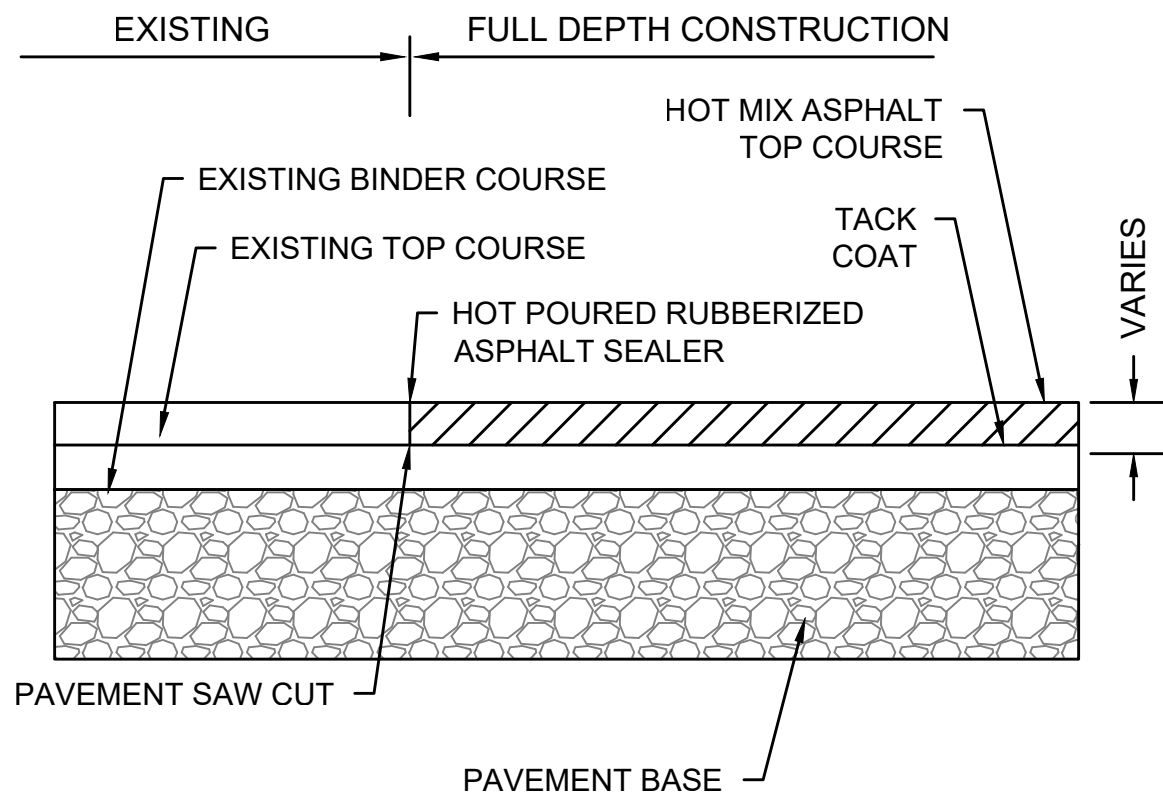
PAVEMENT TRANSITION
NOT TO SCALE



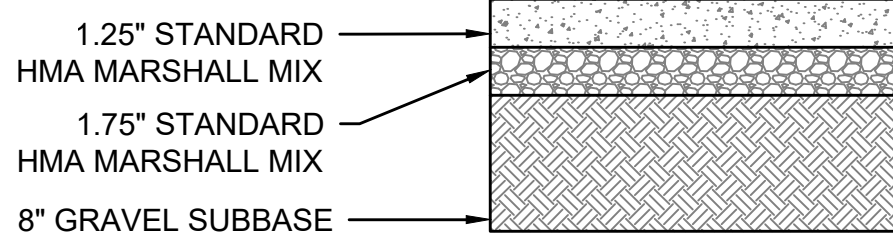
GRANITE CURB TO HOT MIX ASPHALT BERM TRANSITION
NOT TO SCALE



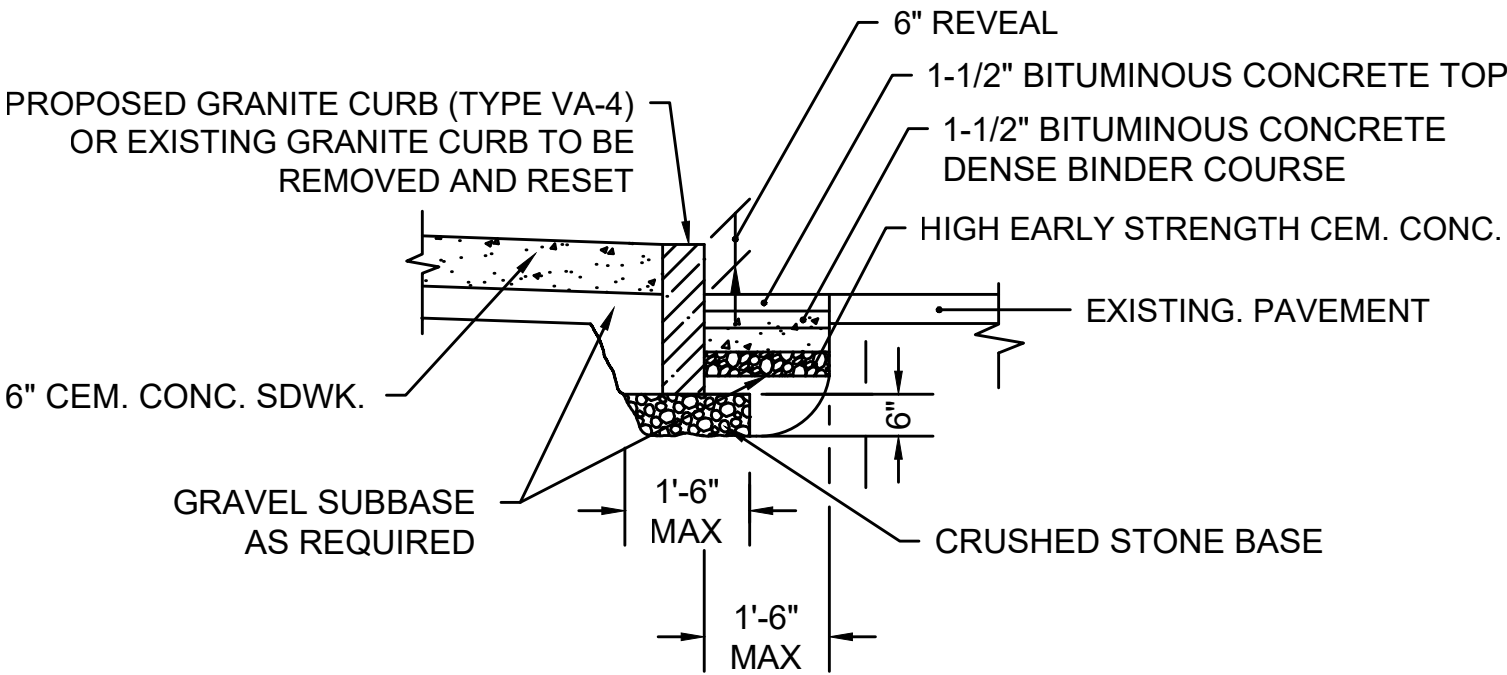
* DEPTH REFLECTS PLACEMENT AND
ROLLING PRIOR TO SEEDING OF LOAM.
LOAM AND SEED DETAILS
NOT TO SCALE



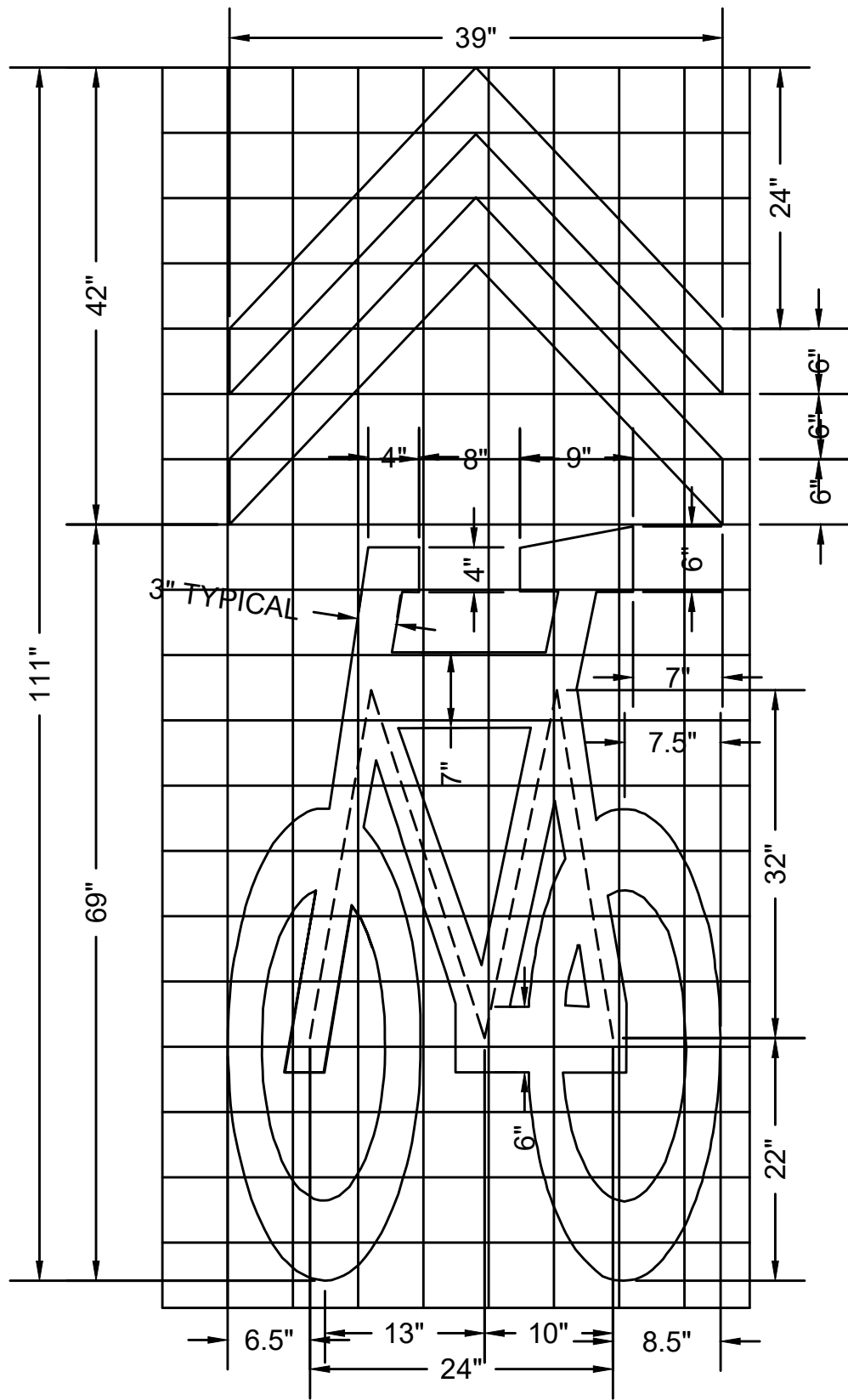
PAVEMENT JOINT DETAIL
NOT TO SCALE



HMA SIDEWALK SECTION DETAIL
NOT TO SCALE

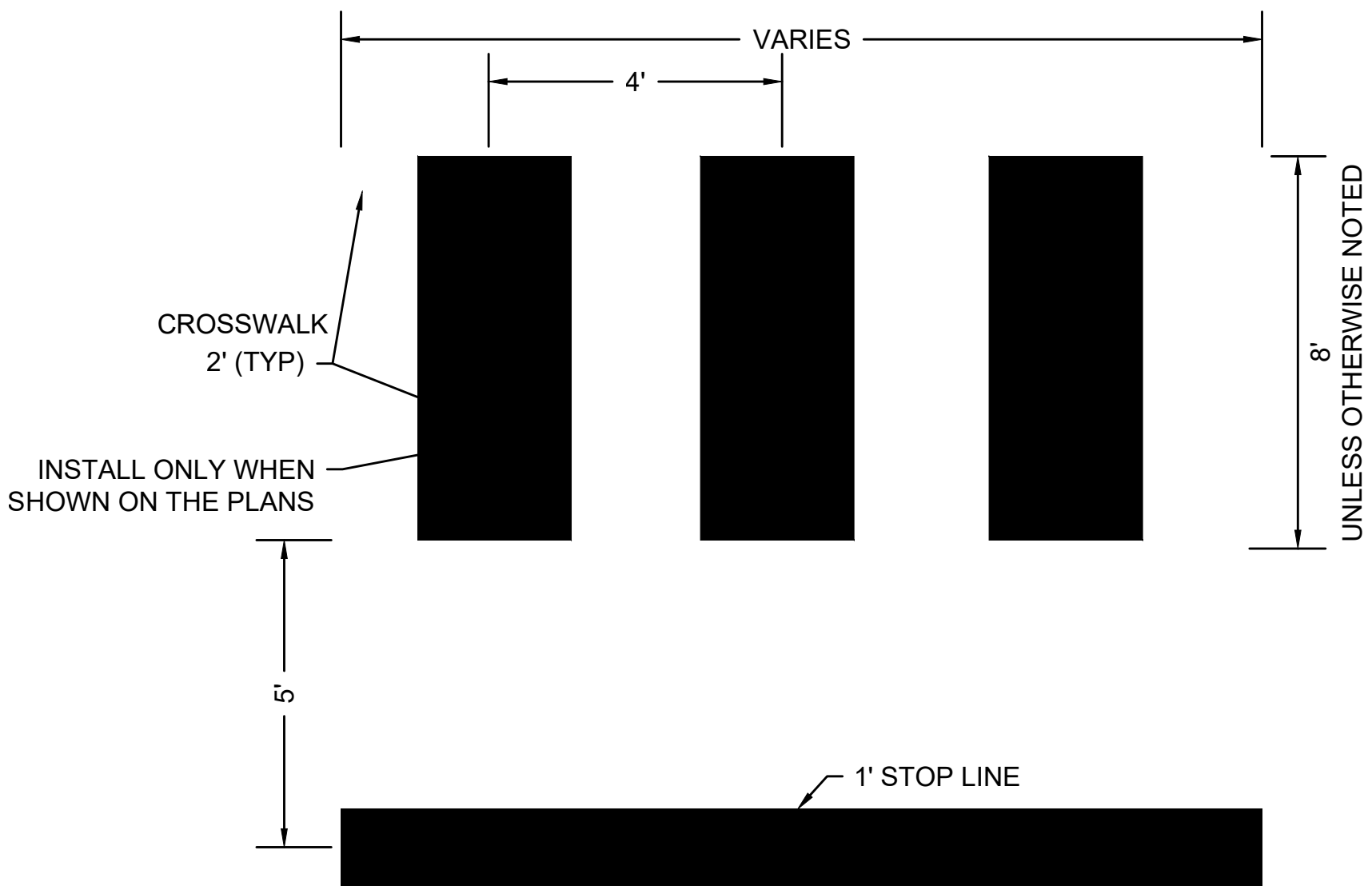


SETTING OR RESETTING CURB
NOT TO SCALE

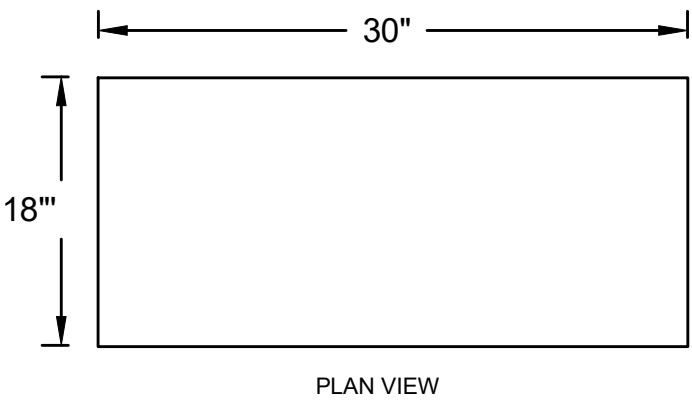


- SHARED LANE SYMBOL PLACEMENT NOTES:**
1. IN LOCATIONS WITH ON-STREET PARKING, SHARED LANE MARKING SYMBOLS SHALL BE PLACED SO THAT THE CENTER IS A MINIMUM OF 11 FEET FROM THE ADJACENT FACE OF CURB.
 2. IN LOCATIONS WITHOUT ON-STREET PARKING, SHARE LANE MARKING SYMBOLS SHALL BE PLACED SO THAT THE CENTER IS 4 FEET FROM THE ADJACENT FACE OF CURB.
 3. IF LOCATED IN A TURN LANE, SHARED LANE MARKING SYMBOLS SHALL BE CENTERED IN THE LANE.
 4. DO NOT PLACE SYMBOLS ON LANE LINES.
 5. SHARED LANE SYMBOLS SHALL BE PLACED A MAXIMUM OF 500 FEET APART.

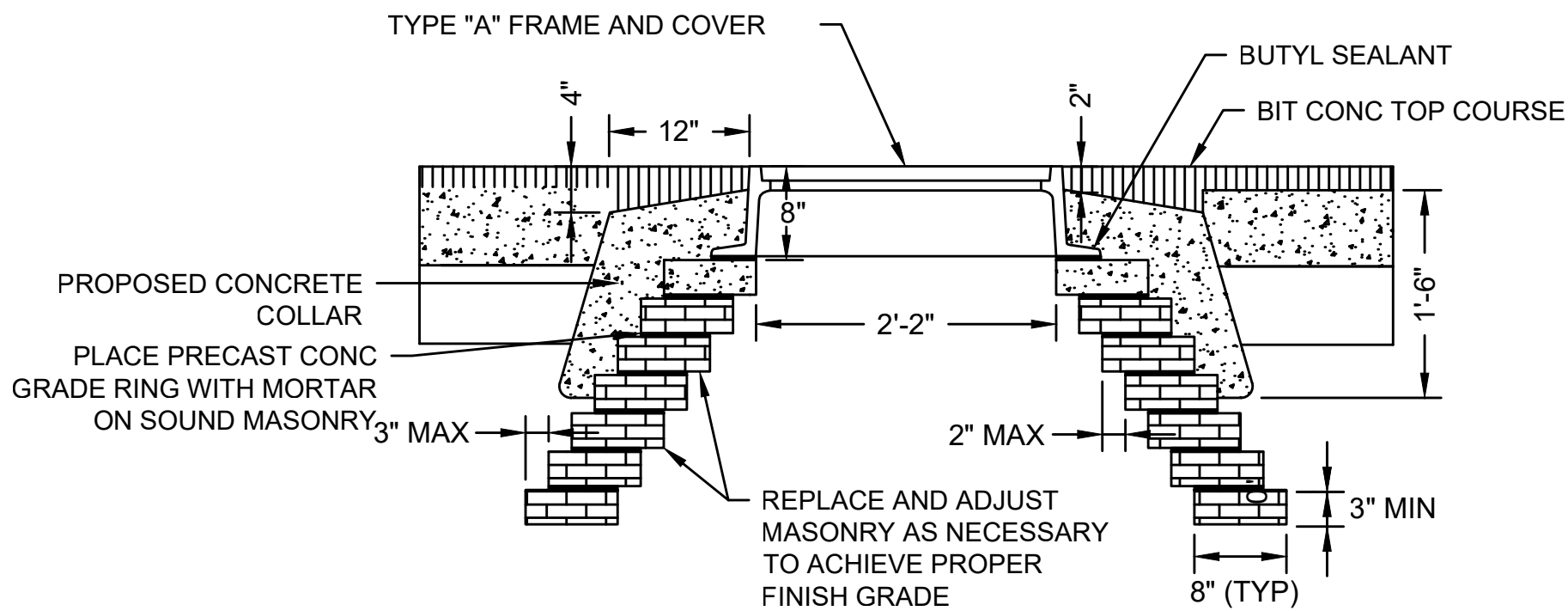
SHARED LANE SYMBOL DETAIL
NOT TO SCALE



CROSSWALK DETAIL
NOT TO SCALE



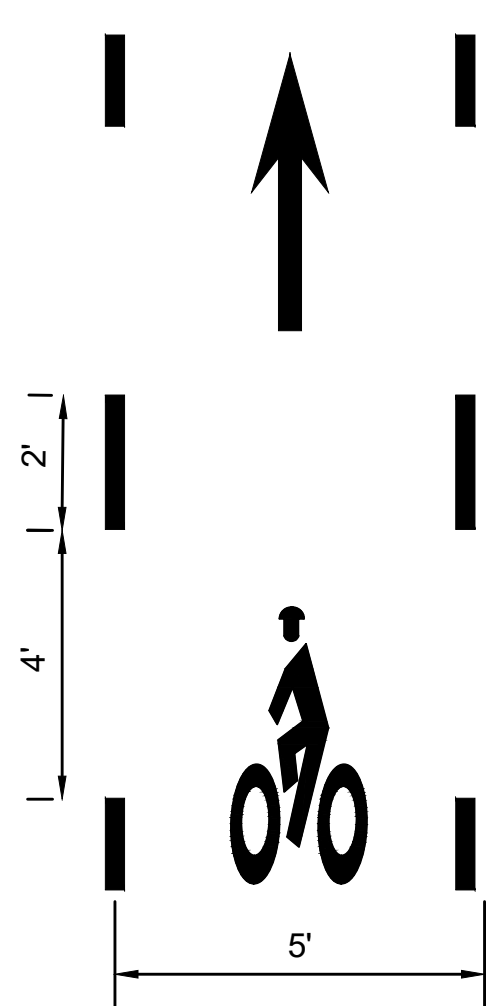
SIGNAL CABINET CONCRETE PAD DETAIL
NOT TO SCALE



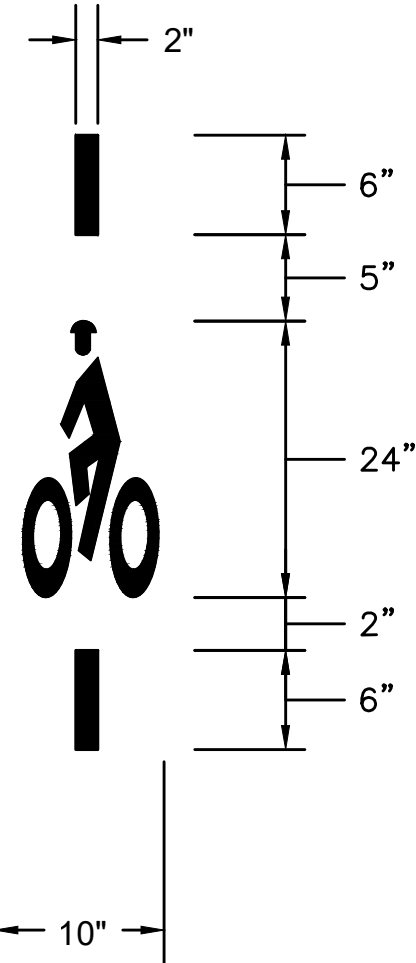
NOTES:

1. DIMENSIONS INDICATED ARE MINIMUM ACCEPTABLE EXCEPT WHERE OTHERWISE STATED. THE ENTIRE EXCAVATION SHALL BE FILLED WITH CONCRETE.
2. APPLY SEALANT TO SURFACE OF COLLAR AND MANHOLE FRAME PRIOR TO PLACING BITUMINOUS CONCRETE TOP.
3. ADJACENT TO CASTING, PLACE AND COMPACT BITUMINOUS CONCRETE TOP IN TWO COURSES.

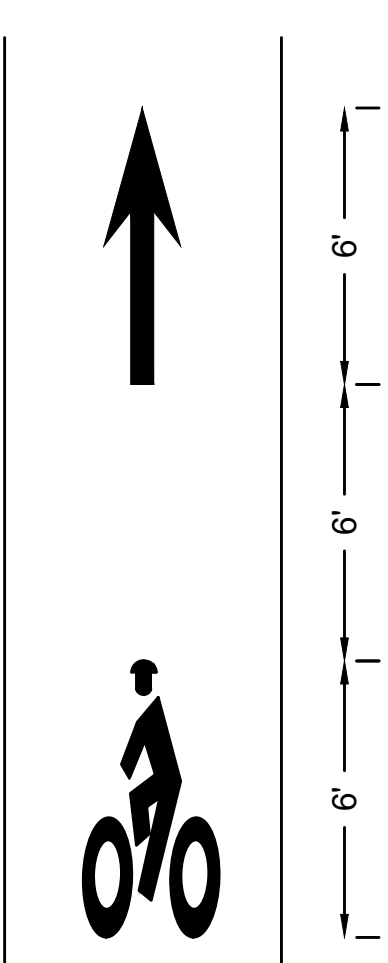
BRICK MANHOLE ADJUSTMENT TO GRADE
NOT TO SCALE



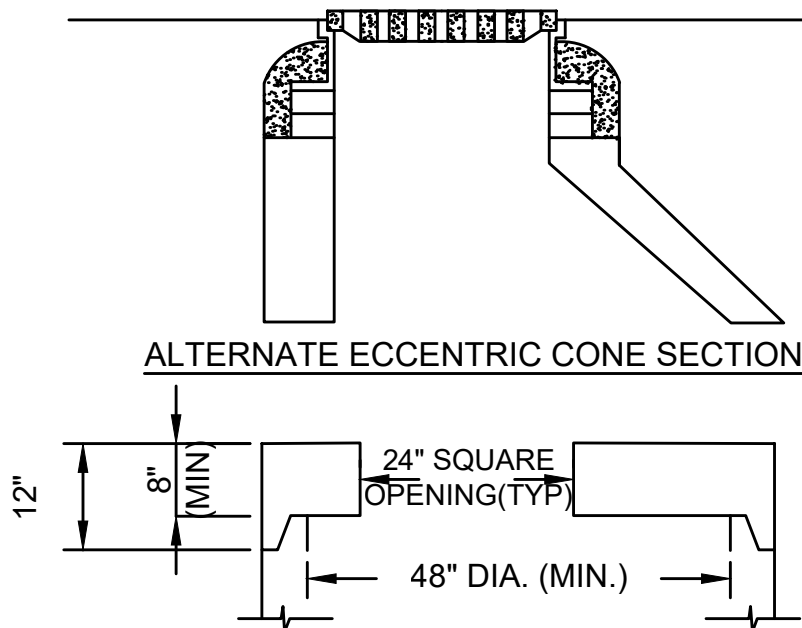
BIKE LANE CONFLICTING ZONE CROSSING
NOT TO SCALE



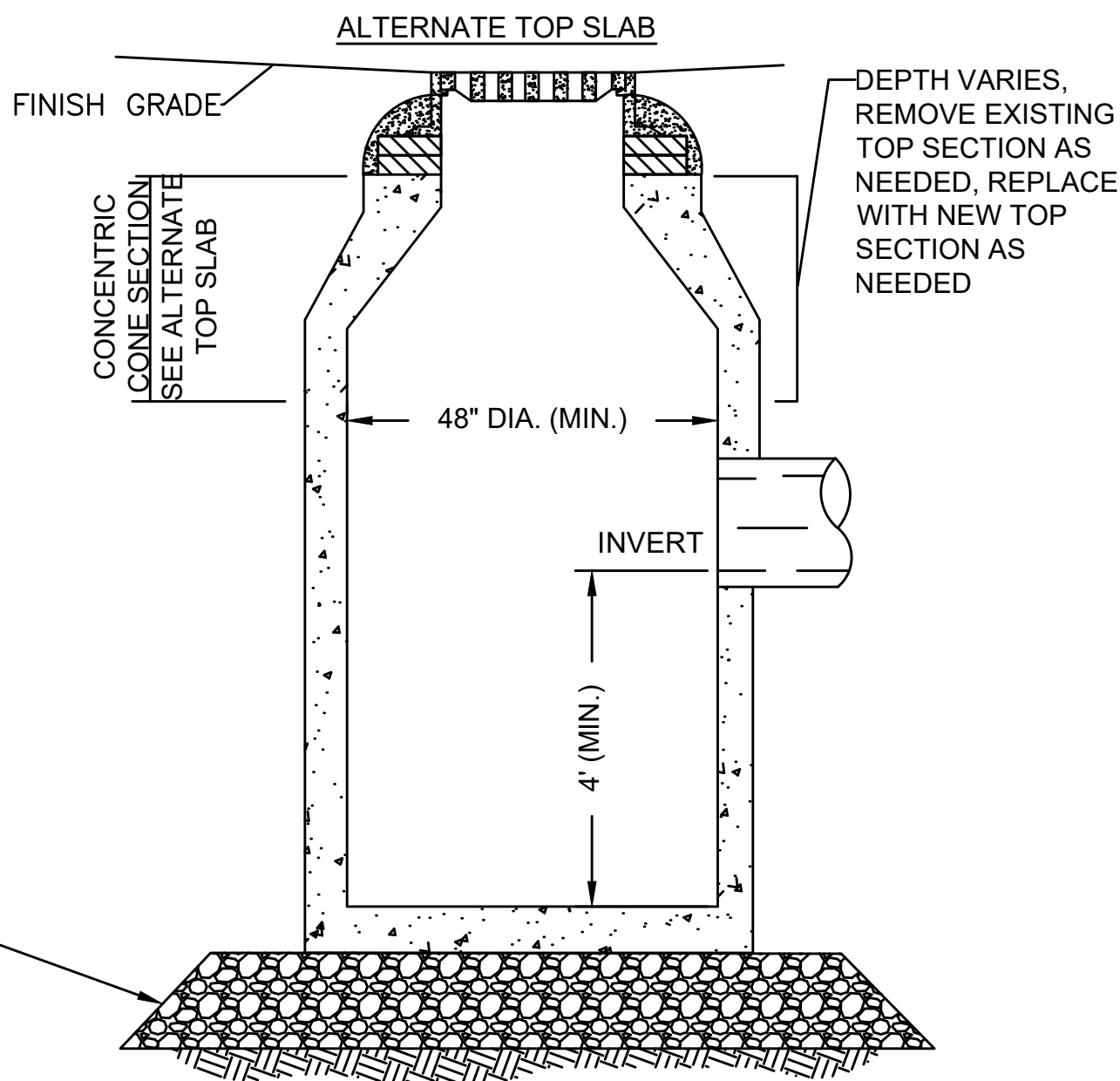
TYPICAL BICYCLE DETECTOR PAVEMENT MARKING
NOT TO SCALE



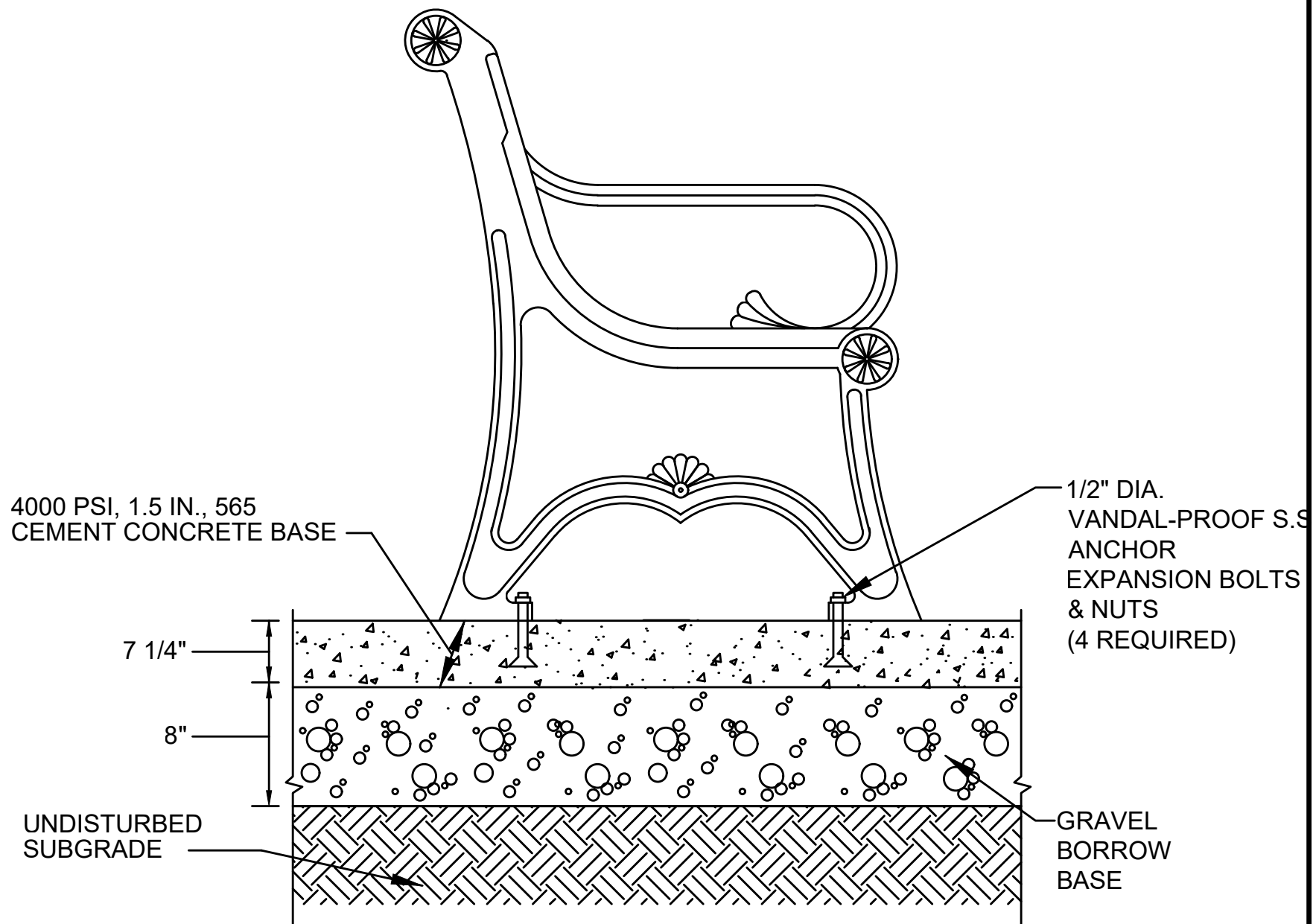
BICYCLE LANE MARKING
NOT TO SCALE



- NOTES:**
1. BASED ON ACTUAL FIELD CONDITIONS; THE CONTRACTOR SHALL DETERMINE WHICH STYLE OF TOP SECTION SHOULD BE USED.



CATCH BASIN
NOT TO SCALE



- NOTE:**
- WHERE APPLICABLE, CONTRACTOR SHALL MOUNT PARK BENCH OUTSIDE OF BRICK ACCENT STRIP

REMOVE AND RESET PARK BENCH
NOT TO SCALE

**LEXINGTON
WORTHEN ROAD AT MASSACHUSETTS AVENUE**

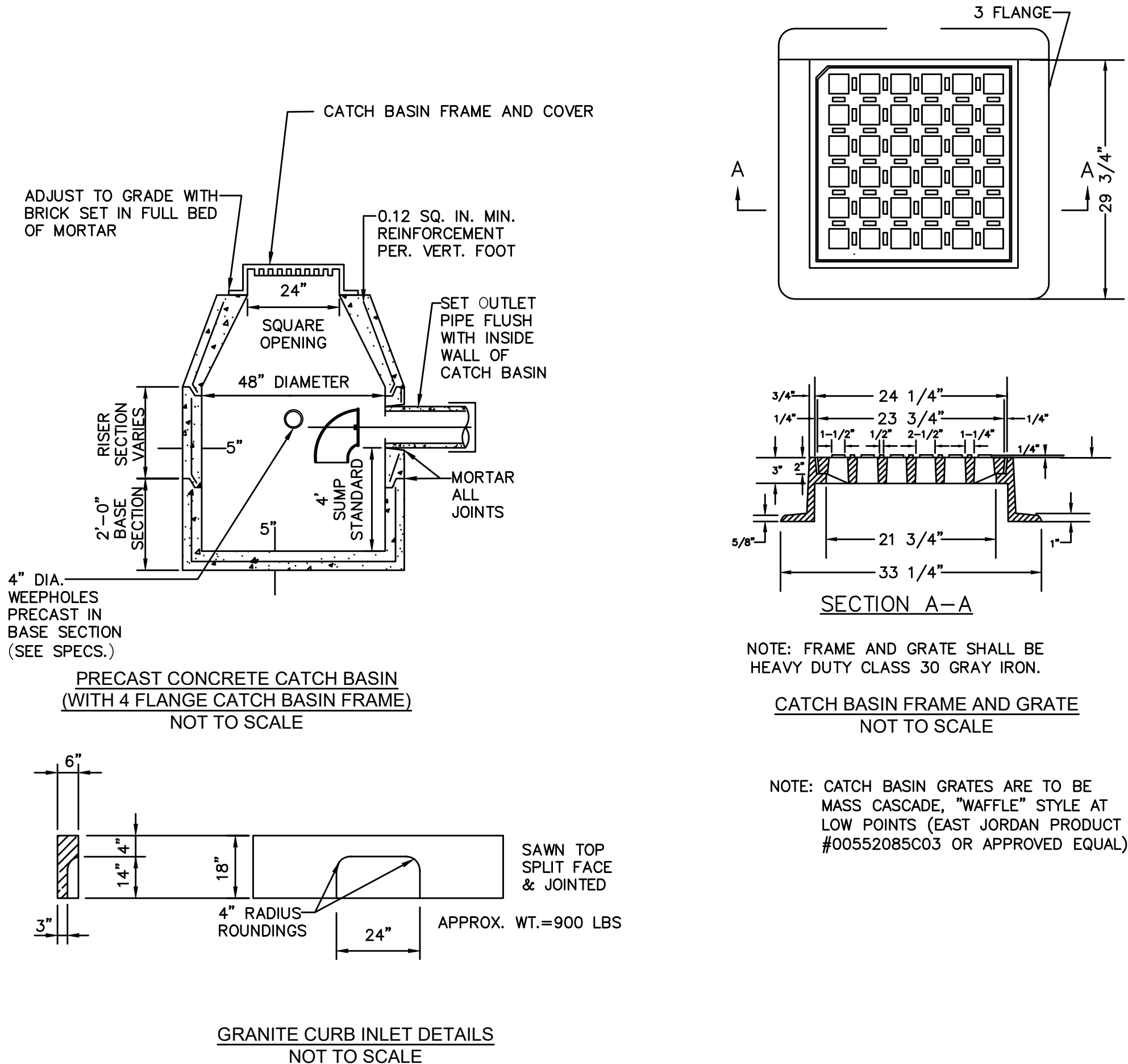
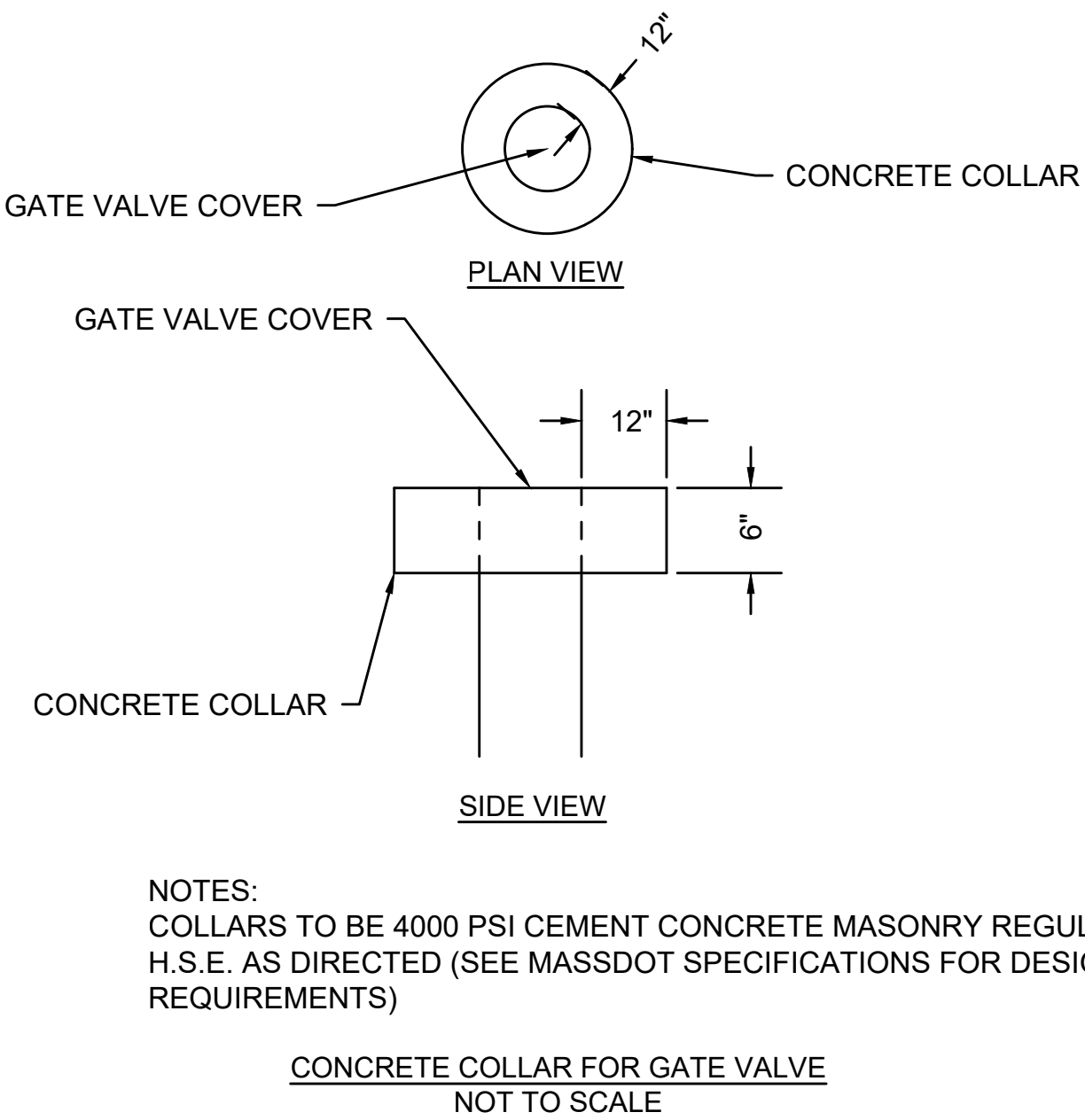
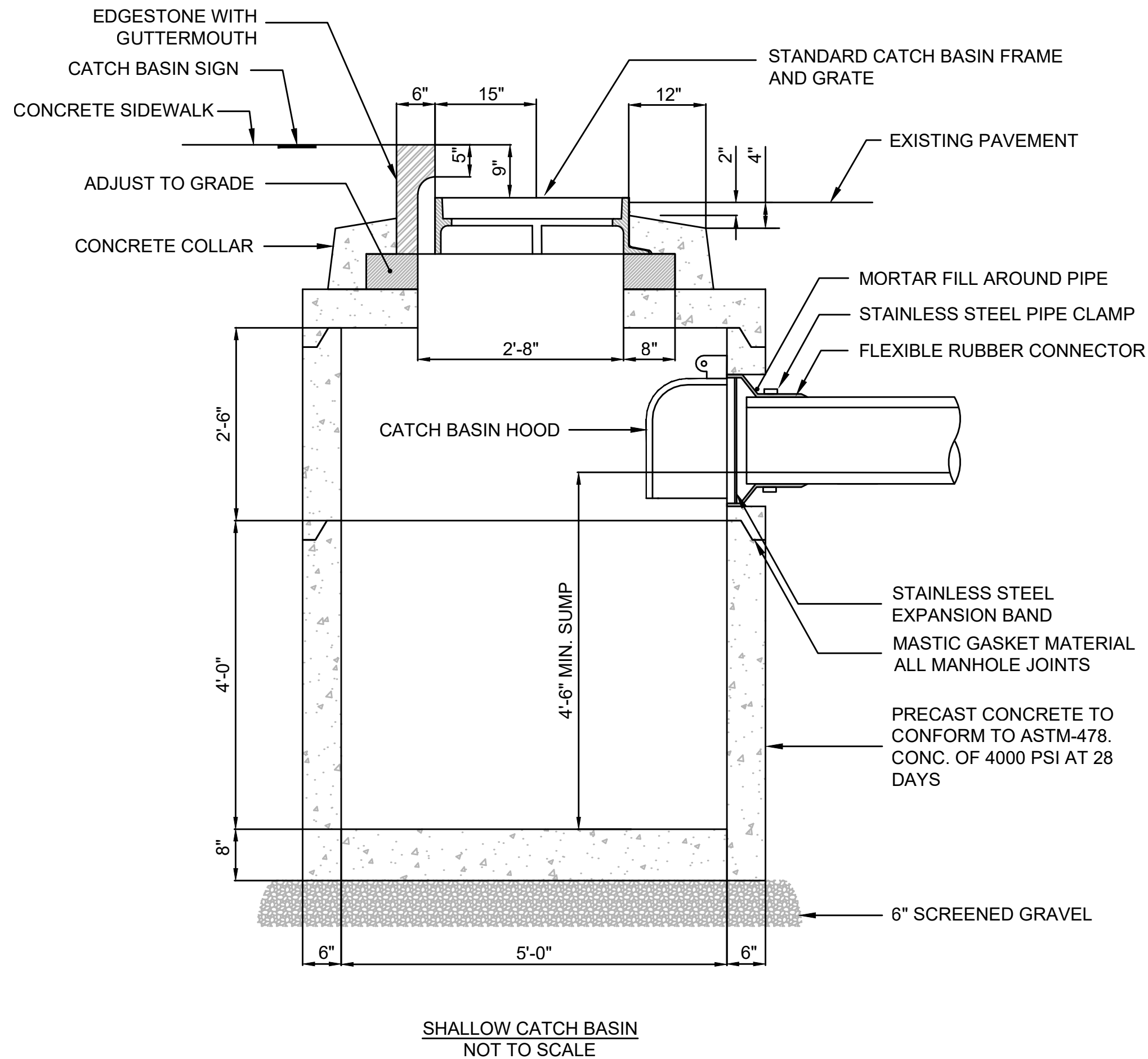
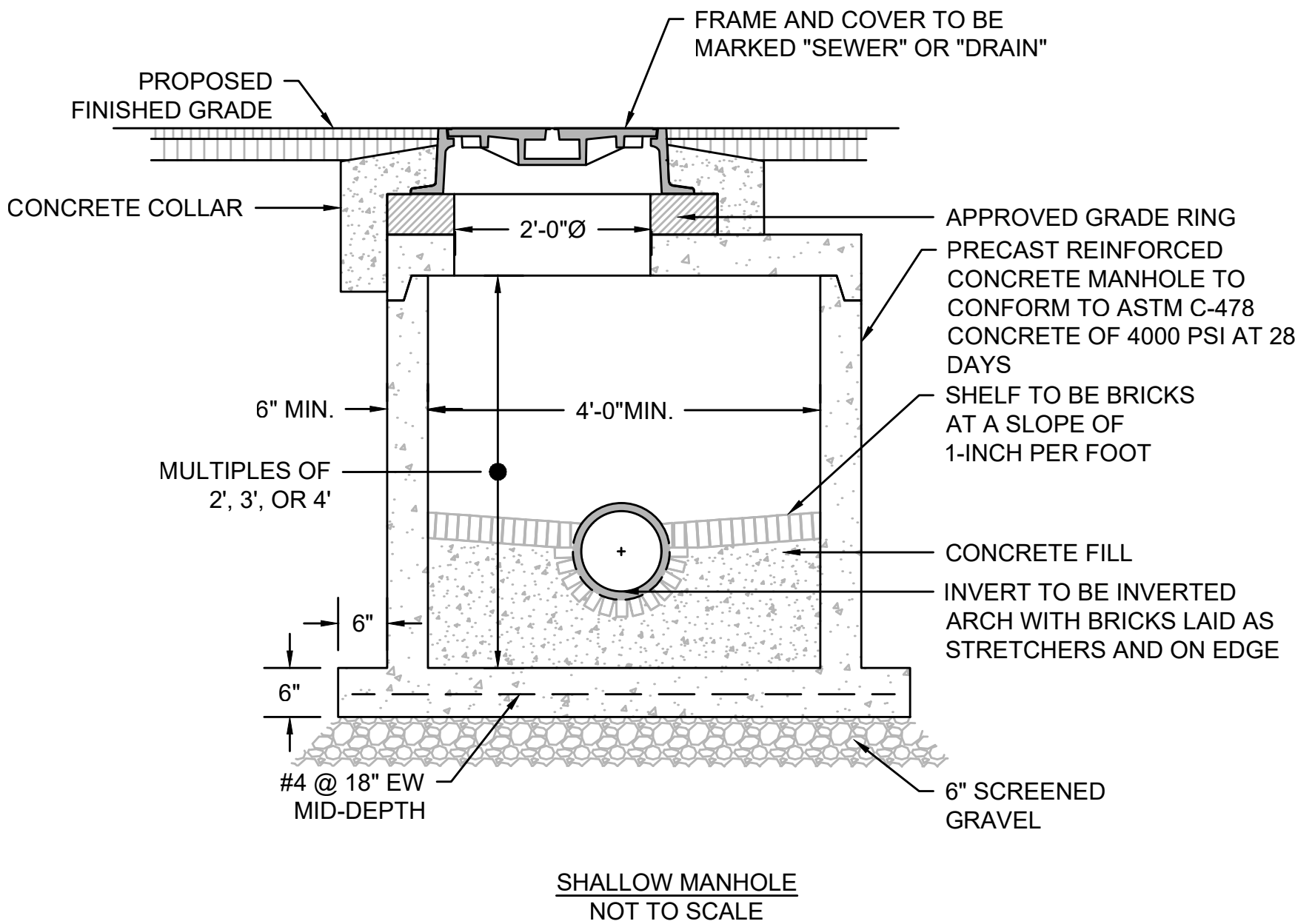
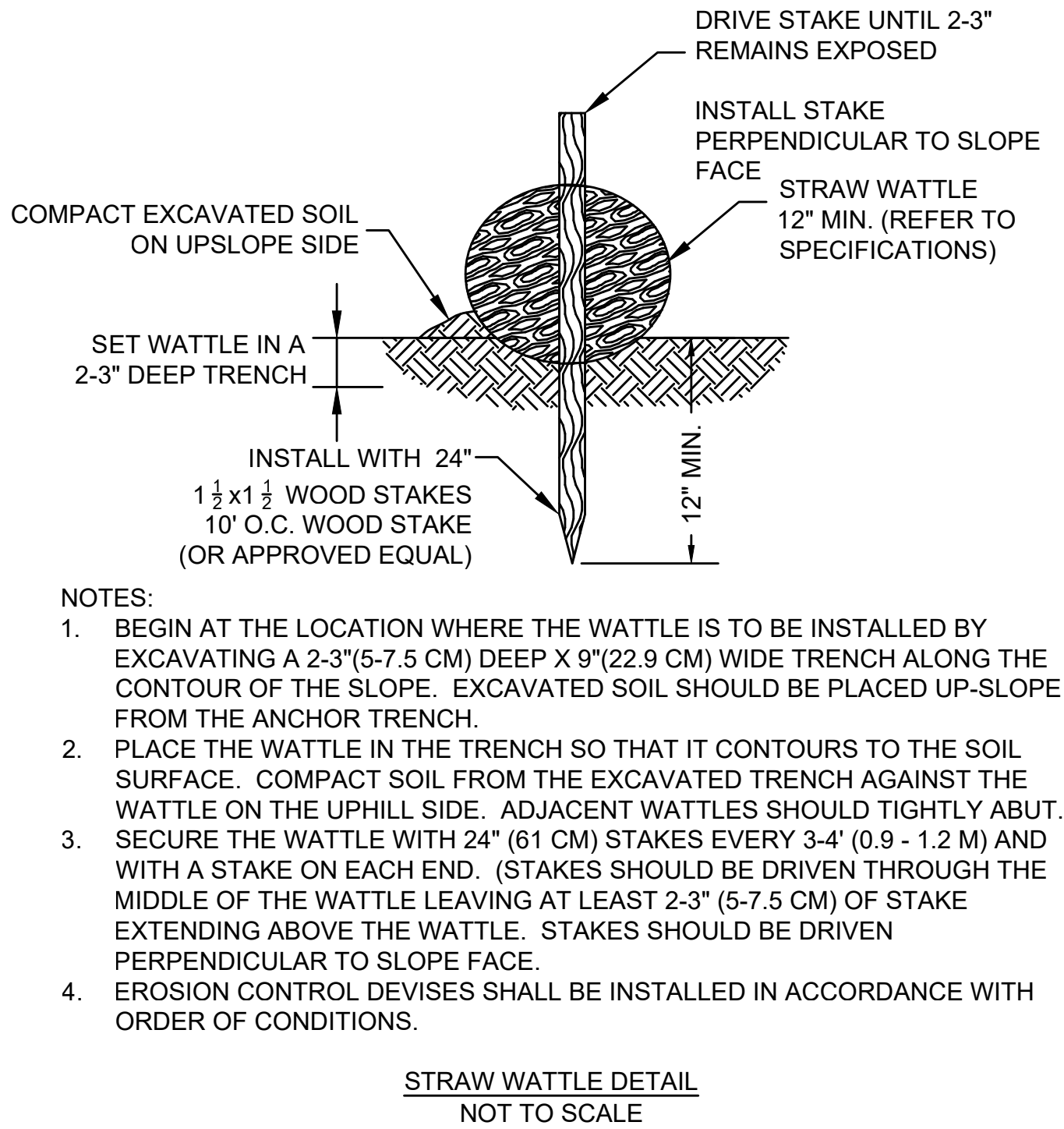
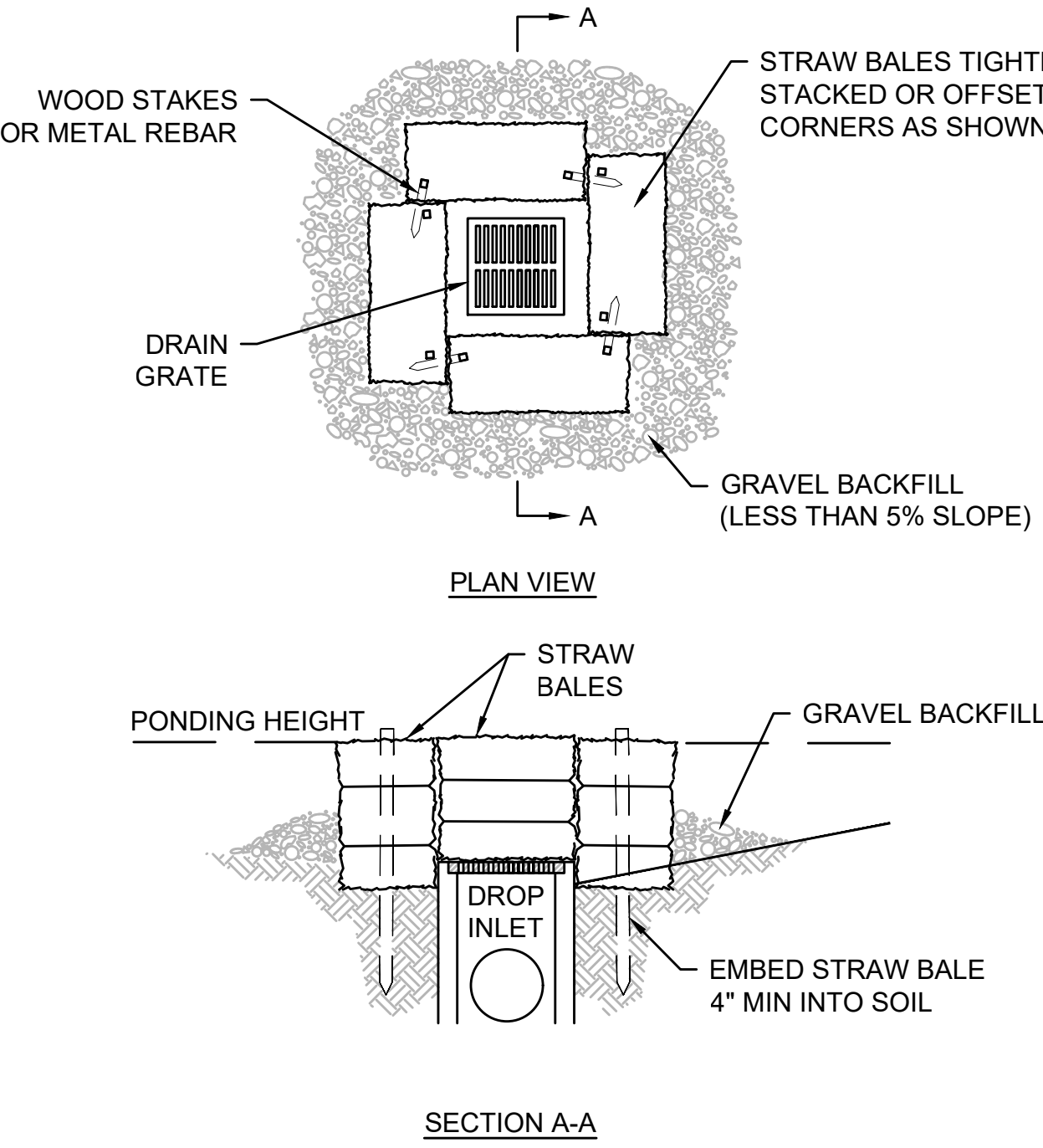
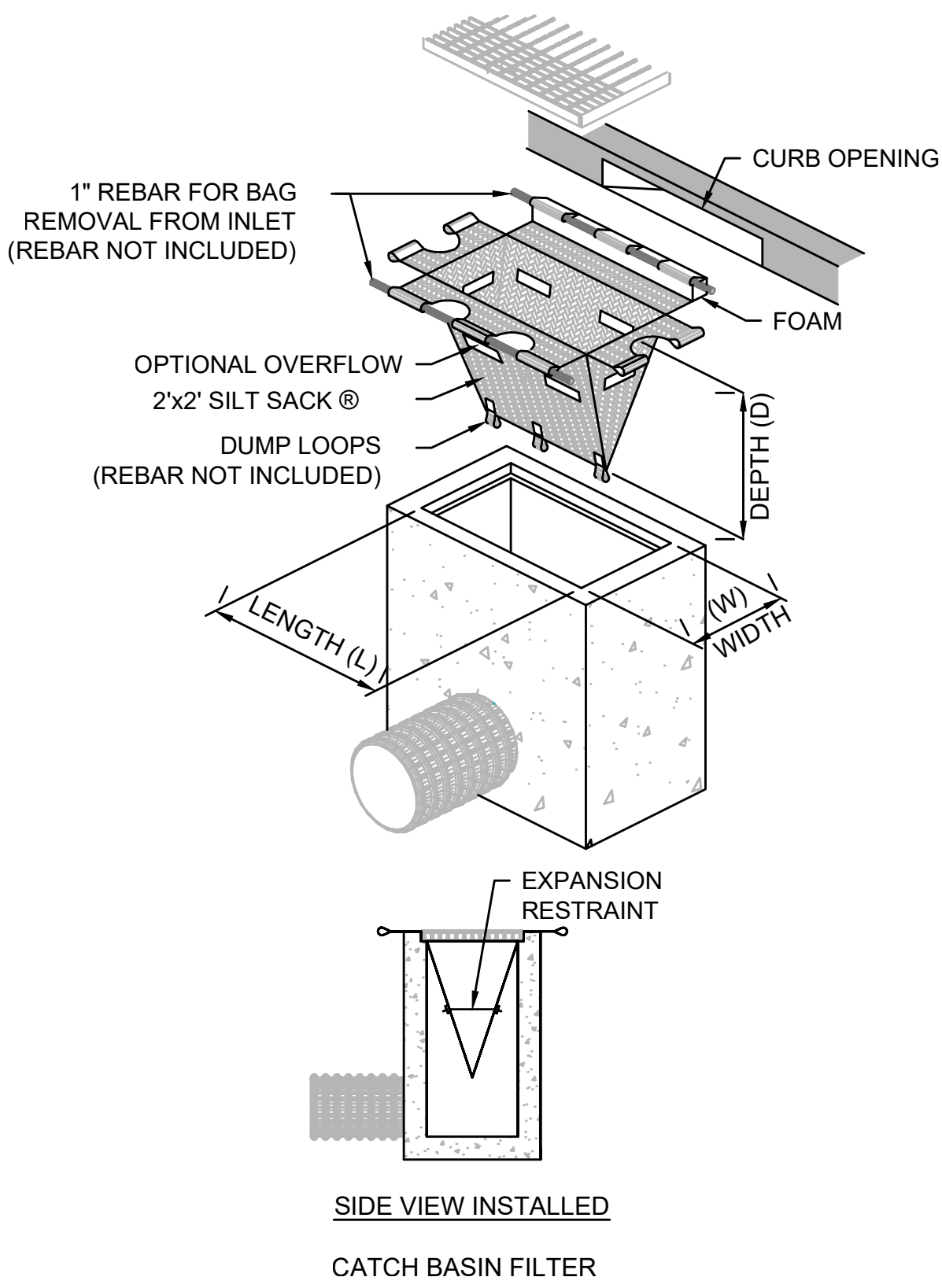
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	11	29

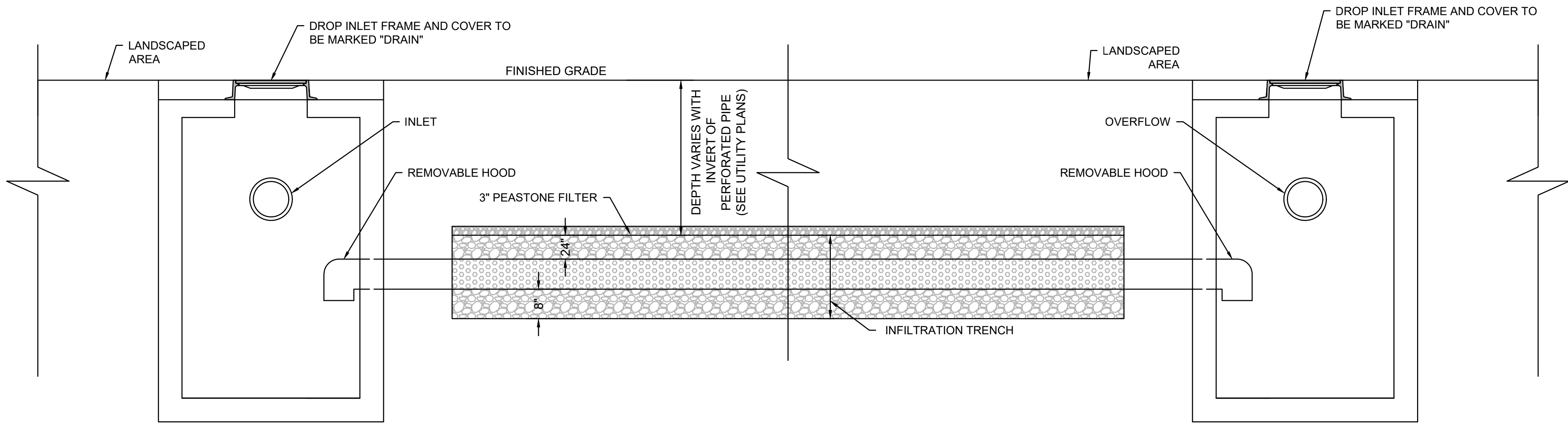
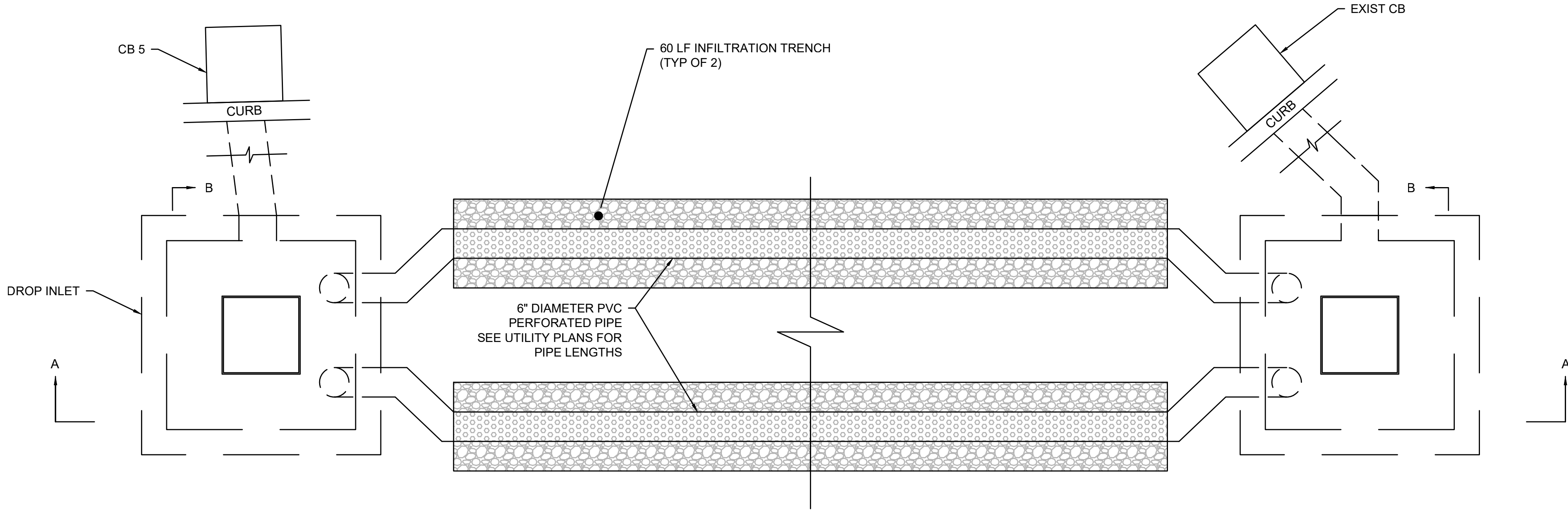
HSH PROJECT FILE NO. 2016212.00

CONSTRUCTION DETAILS

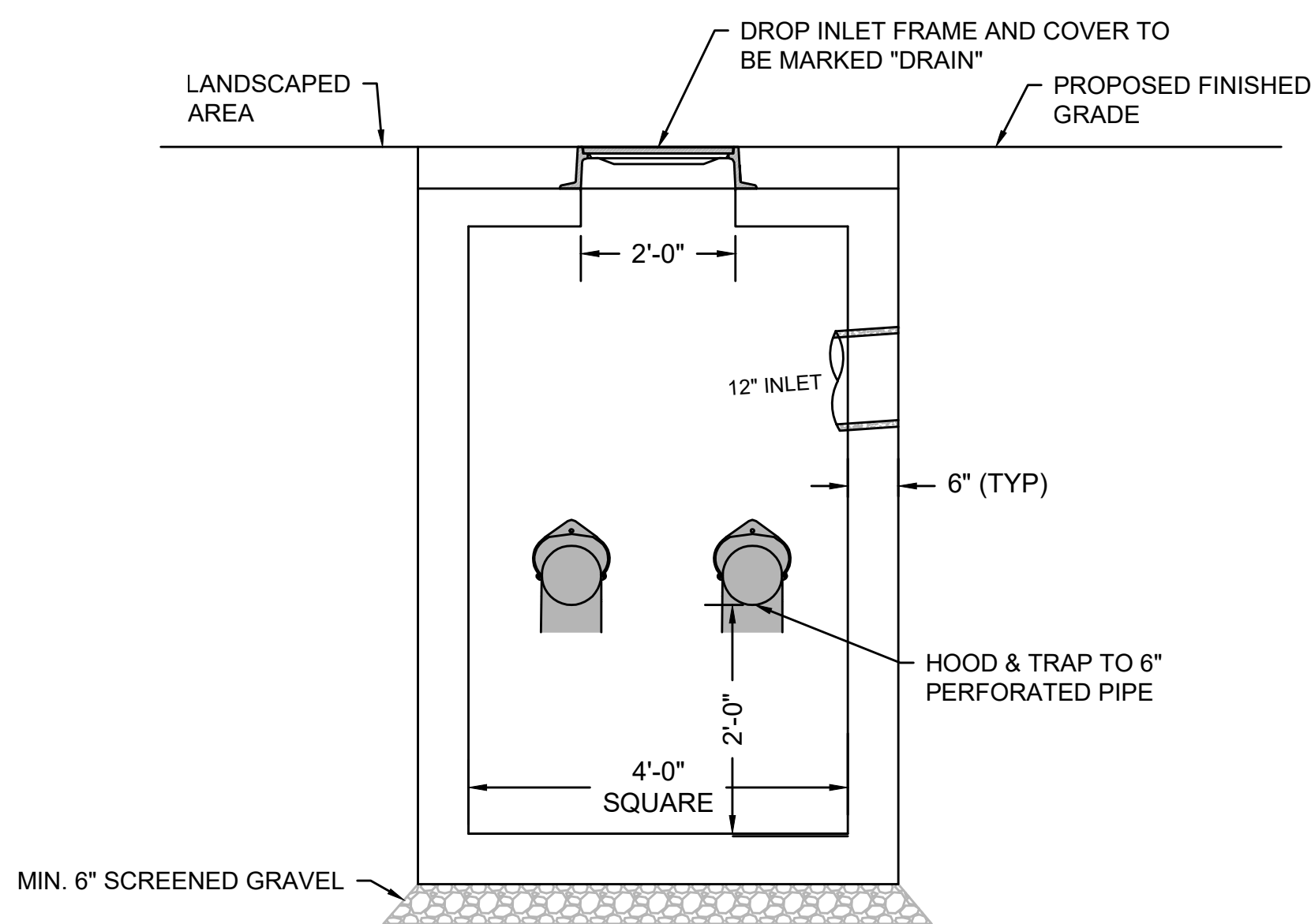
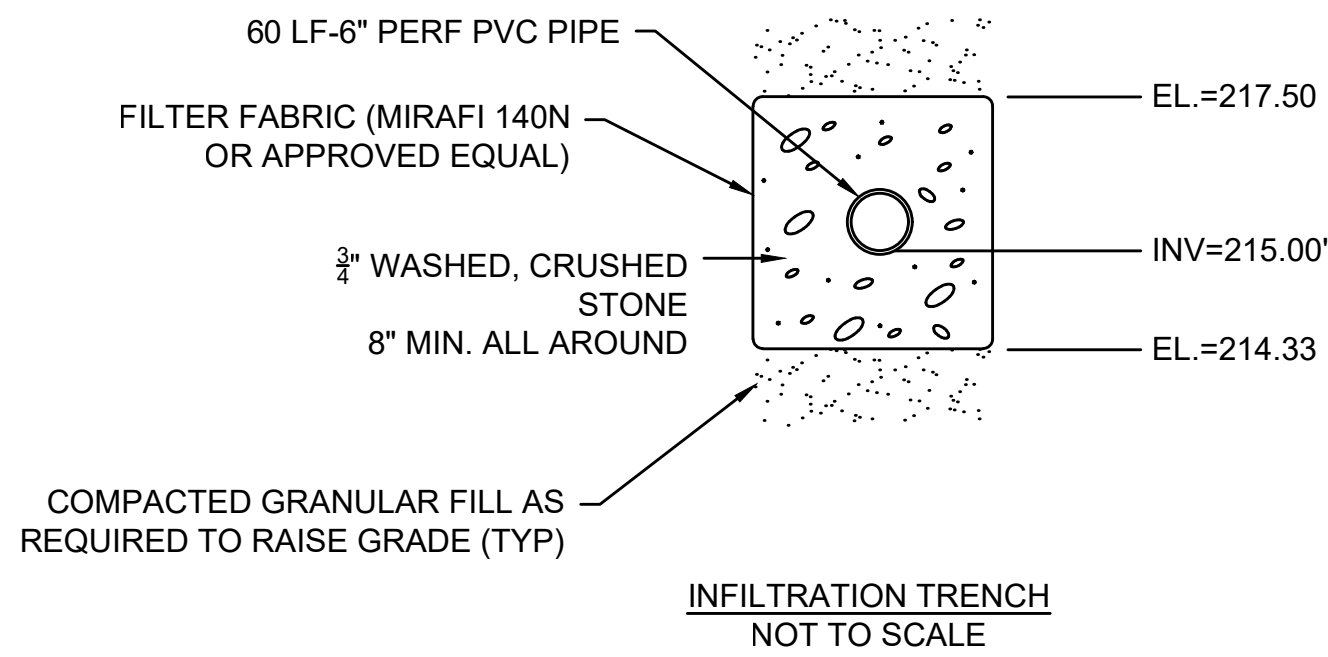
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MA	-	12	29
HSH PROJECT FILE NO. 2016212.00			

CONSTRUCTION DETAILS



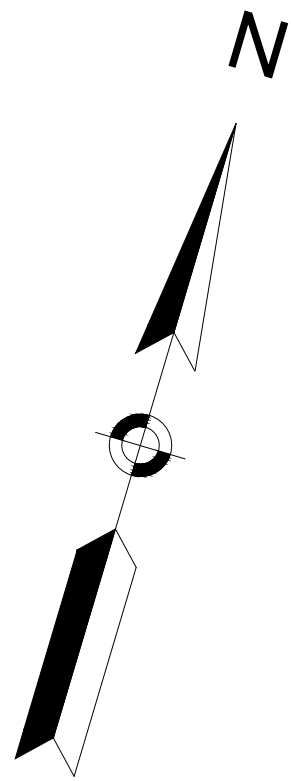


INFILTRATION TRENCH
NOT TO SCALE



- NOTES:
- CONCRETE 4,000 PSI AT 28 DAYS
 - STRUCTURE ADEQUATE FOR H2O LOADING

DROP INLET DETAIL
NOT TO SCALE

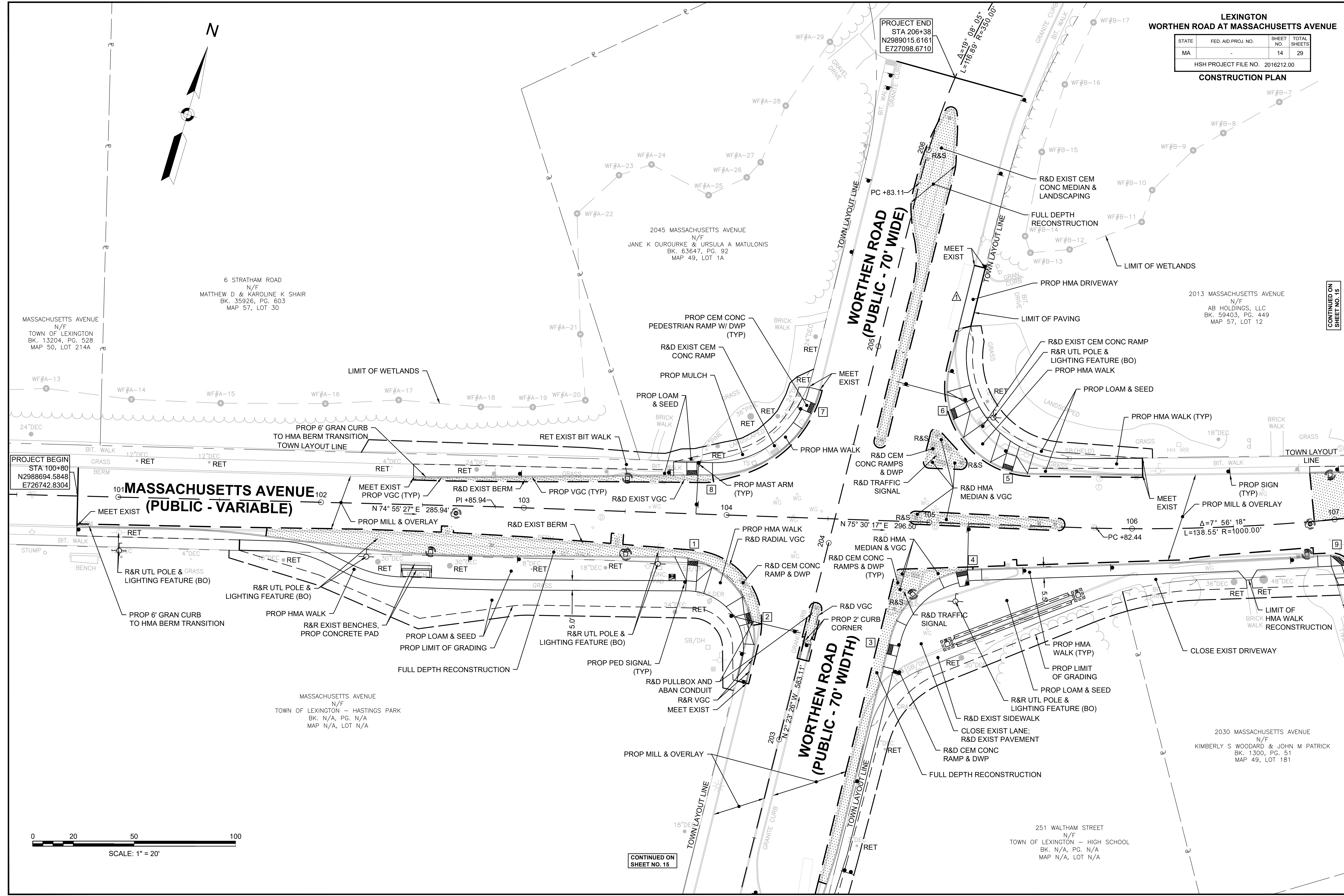


LEXINGTON
WORTHEN ROAD AT MASSACHUSETTS AVENUE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	14	29

HSH PROJECT FILE NO. 2016212.00

CONSTRUCTION PLAN



PROJECT BEGIN
STA 100+80
N2988694.5848
E726742.8304

PROJECT END
STA 206+38
N2989015.6161
E727098.6710

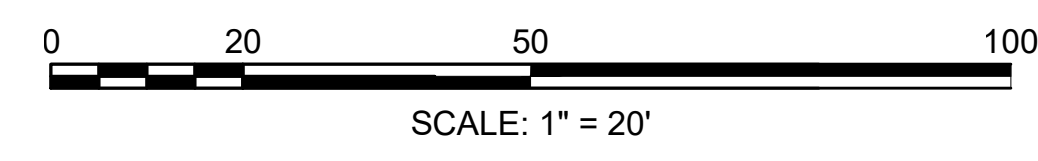
MASSACHUSETTS AVENUE
(PUBLIC - VARIABLE)

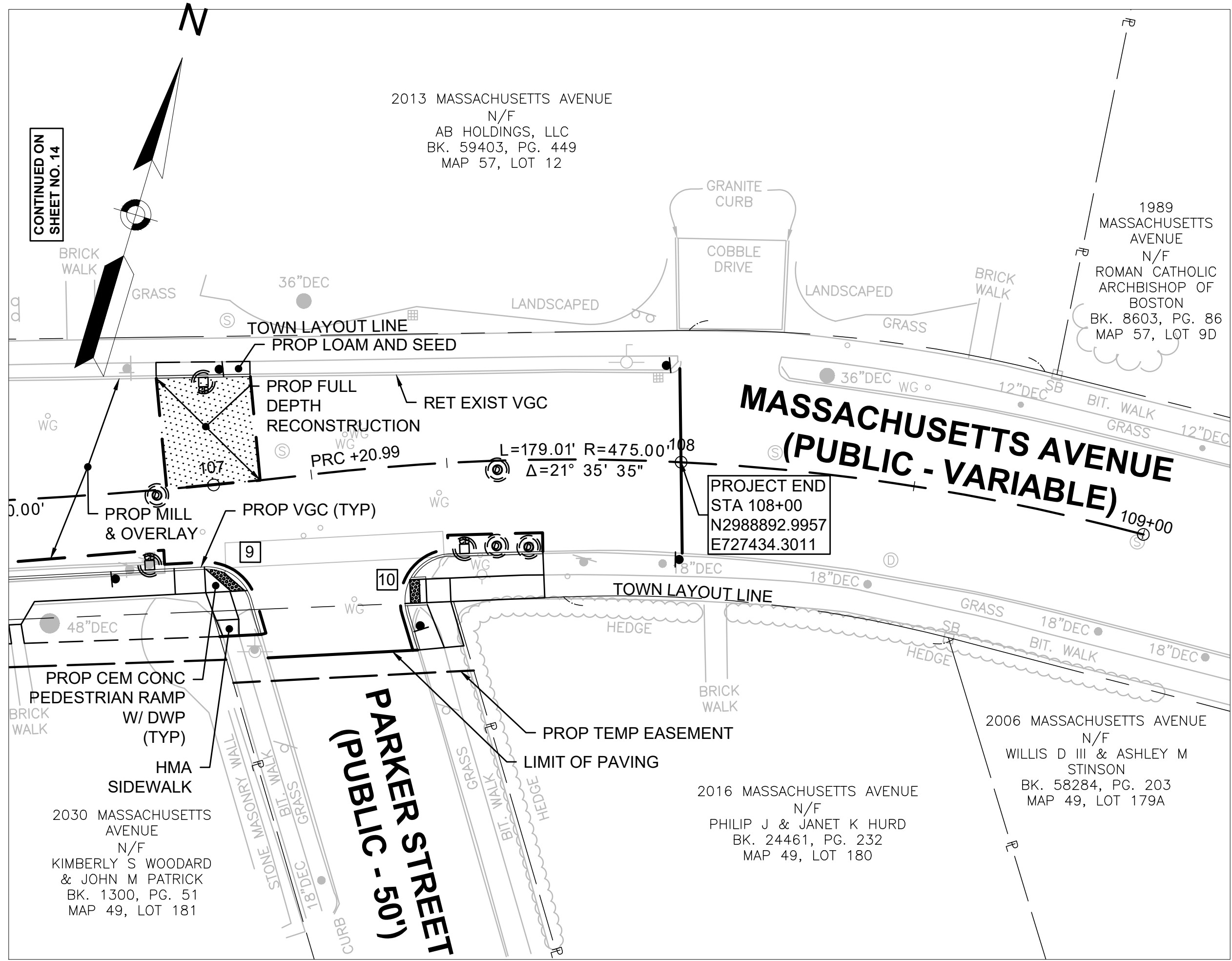
WORTHEN ROAD
(PUBLIC - 70' WIDE)

WORTHEN ROAD
(PUBLIC - 70' WIDE)

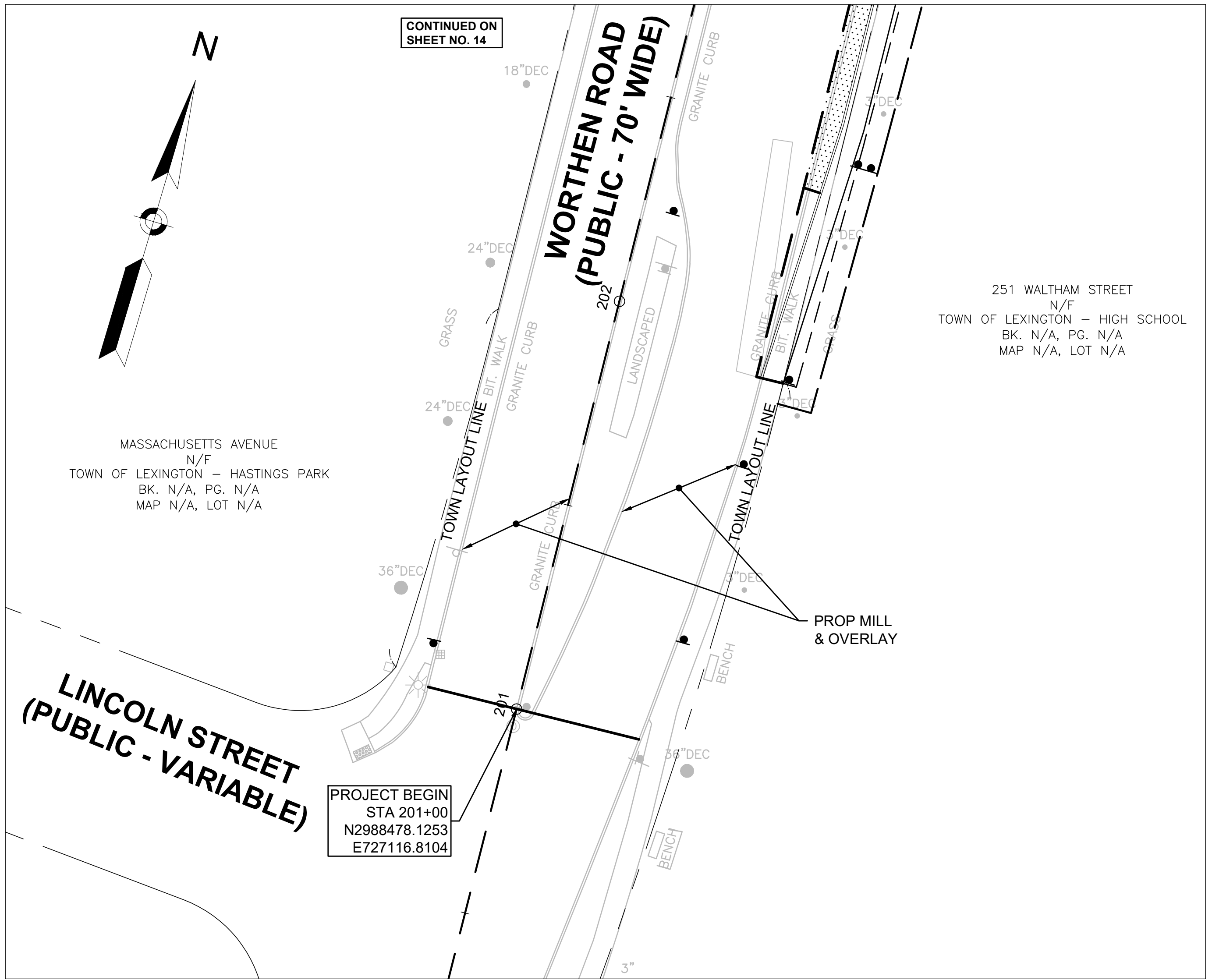
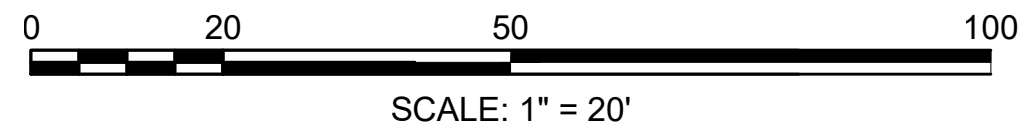
CONTINUED ON
SHEET NO. 15

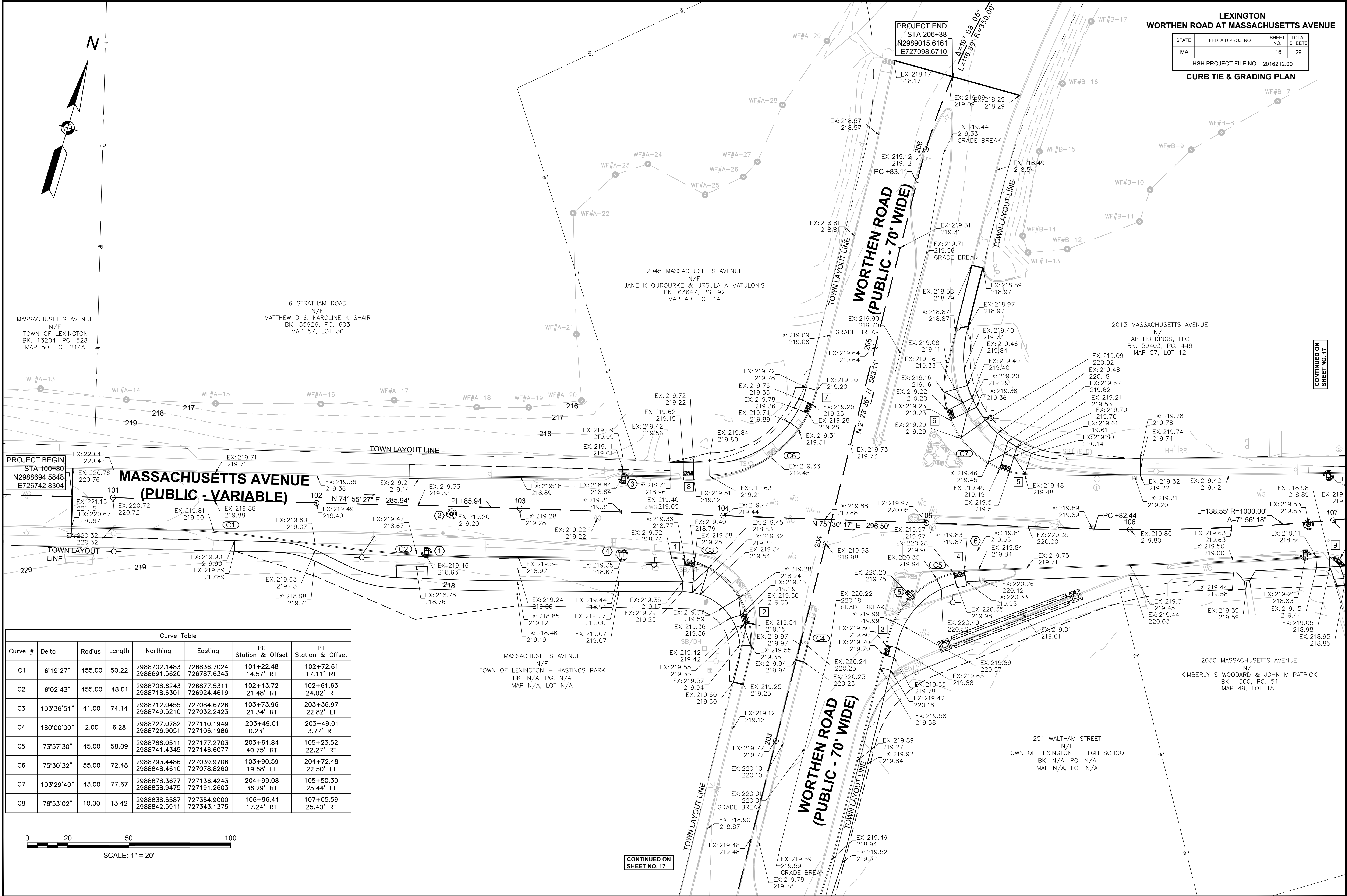
CONTINUED ON
SHEET NO. 15





LEXINGTON			
WORTHEN ROAD AT MASSACHUSETTS AVENUE			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	15	29
HSH PROJECT FILE NO. 2016212.00			
CONSTRUCTION PLAN			





LEXINGTON
WORTHEN ROAD AT MASSACHUSETTS AVENUE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	16	29

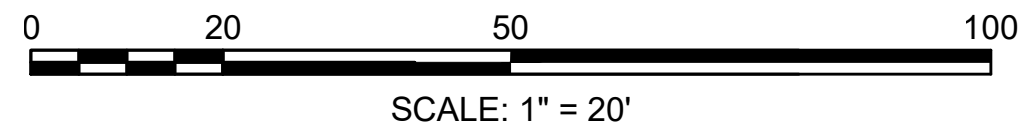
HSH PROJECT FILE NO. 2016212.00

CURB TIE & GRADING PLAN

PROJECT BEGIN
STA 100+80
N2988694.5848
E726742.8304

PROJECT END
STA 206+38
N2989015.6161
E727098.6710

Curve Table							
Curve #	Delta	Radius	Length	Northing	Easting	PC Station & Offset	PT Station & Offset
C1	6°19'27"	455.00	50.22	2988702.1483 2988691.5620	726836.7024 726787.6343	101+22.48 14.57' RT	102+72.61 17.11' RT
C2	6°02'43"	455.00	48.01	2988708.6243 2988718.6301	726877.5311 726924.4619	102+13.72 21.48' RT	102+61.63 24.02' RT
C3	103°36'51"	41.00	74.14	2988712.0455 2988749.5210	727084.6726 727032.2423	103+73.96 21.34' RT	203+36.97 22.82' LT
C4	180°00'00"	2.00	6.28	2988727.0782 2988726.9051	727110.1949 727106.1986	203+49.01 0.23' LT	203+49.01 3.77' RT
C5	73°57'30"	45.00	58.09	2988786.0511 2988741.4345	727177.2703 727146.6077	203+61.84 40.75' RT	105+23.52 22.27' RT
C6	75°30'32"	55.00	72.48	2988793.4486 2988848.4610	727039.9706 727078.8260	103+90.59 19.68' LT	204+72.48 22.50' LT
C7	103°29'40"	43.00	77.67	2988878.3677 2988838.9475	727136.4243 727191.2603	204+99.08 36.29' RT	105+50.30 25.44' LT
C8	76°53'02"	10.00	13.42	2988838.5587 2988842.5911	727354.9000 727343.1375	106+96.41 17.24' RT	107+05.59 25.40' RT



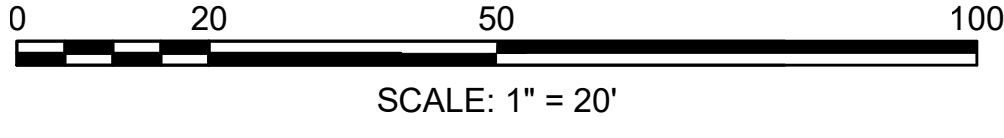
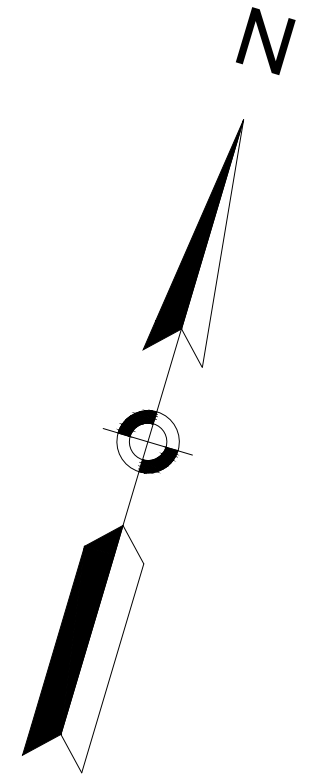
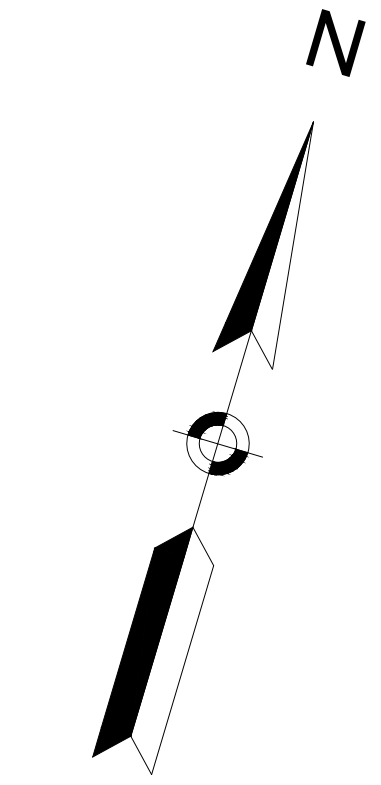
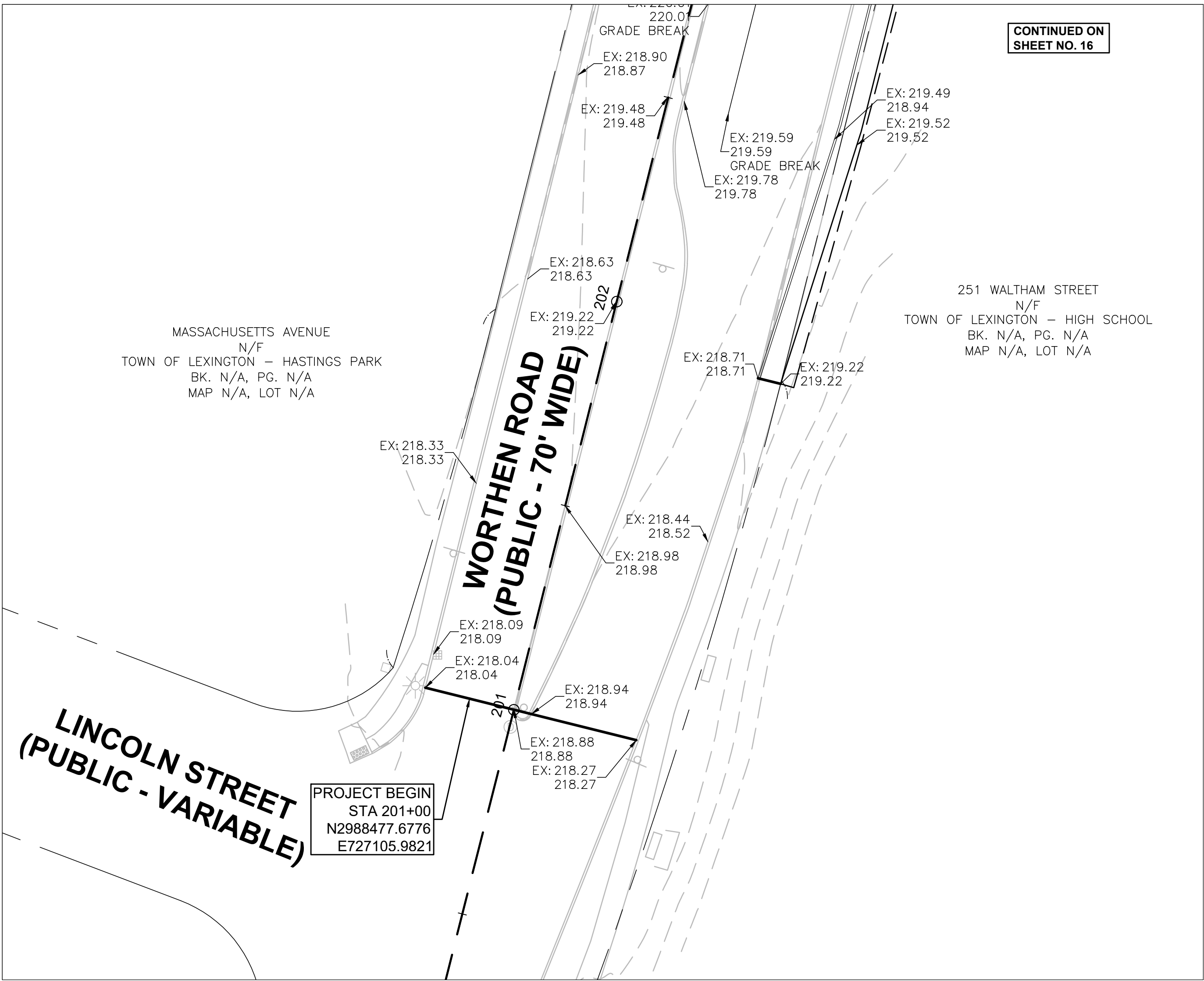
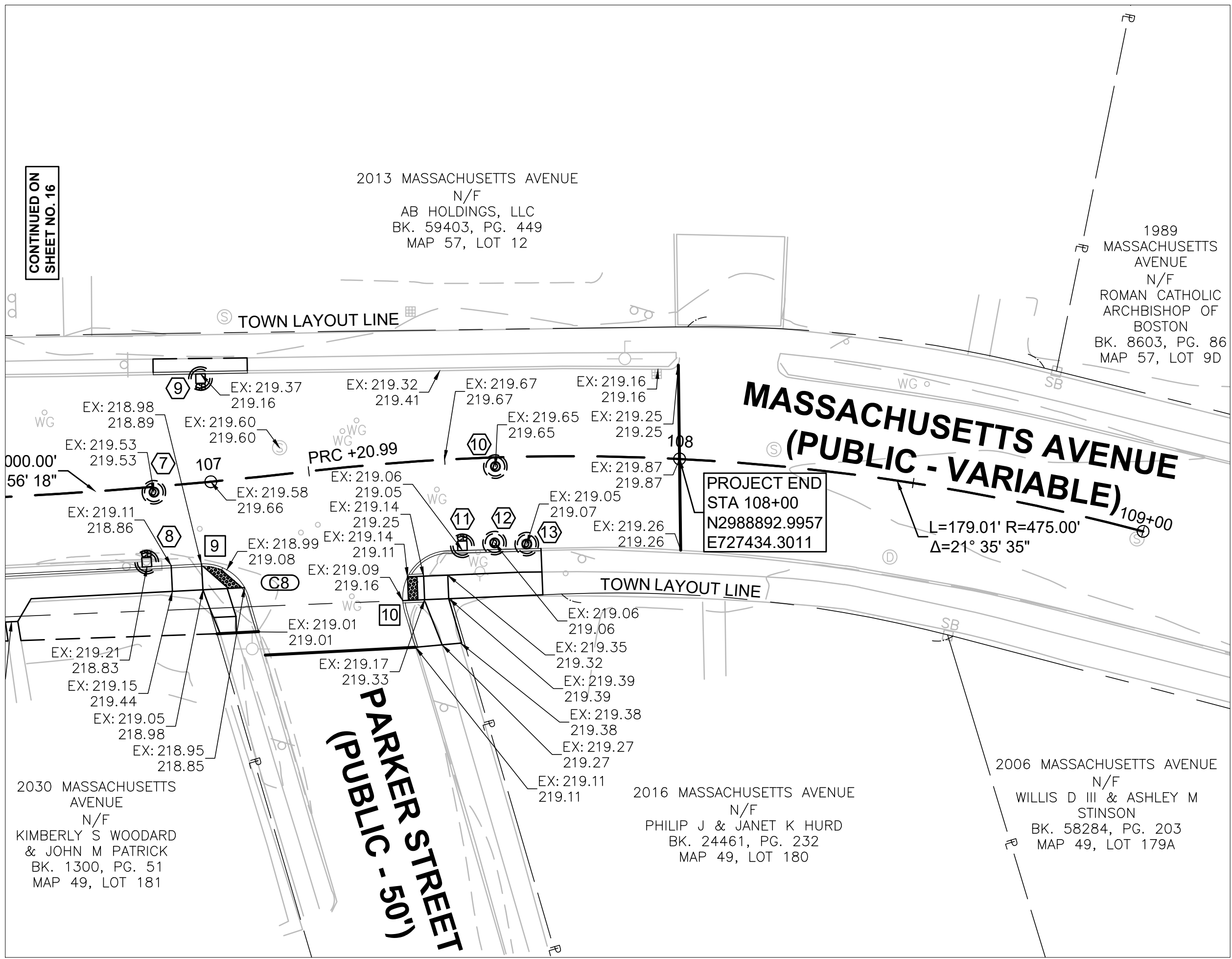
CONTINUED ON
SHEET NO. 17

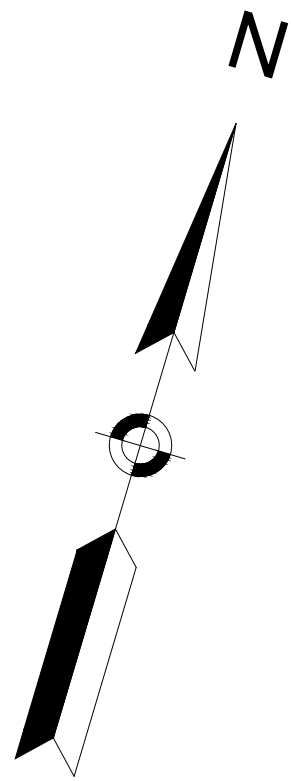
CONTINUED ON
SHEET NO. 17

LEXINGTON
WORTHEN ROAD AT MASSACHUSETTS AVENUE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	17	29
HSH PROJECT FILE NO. 2016212.00			

CURB TIE & GRADING PLAN





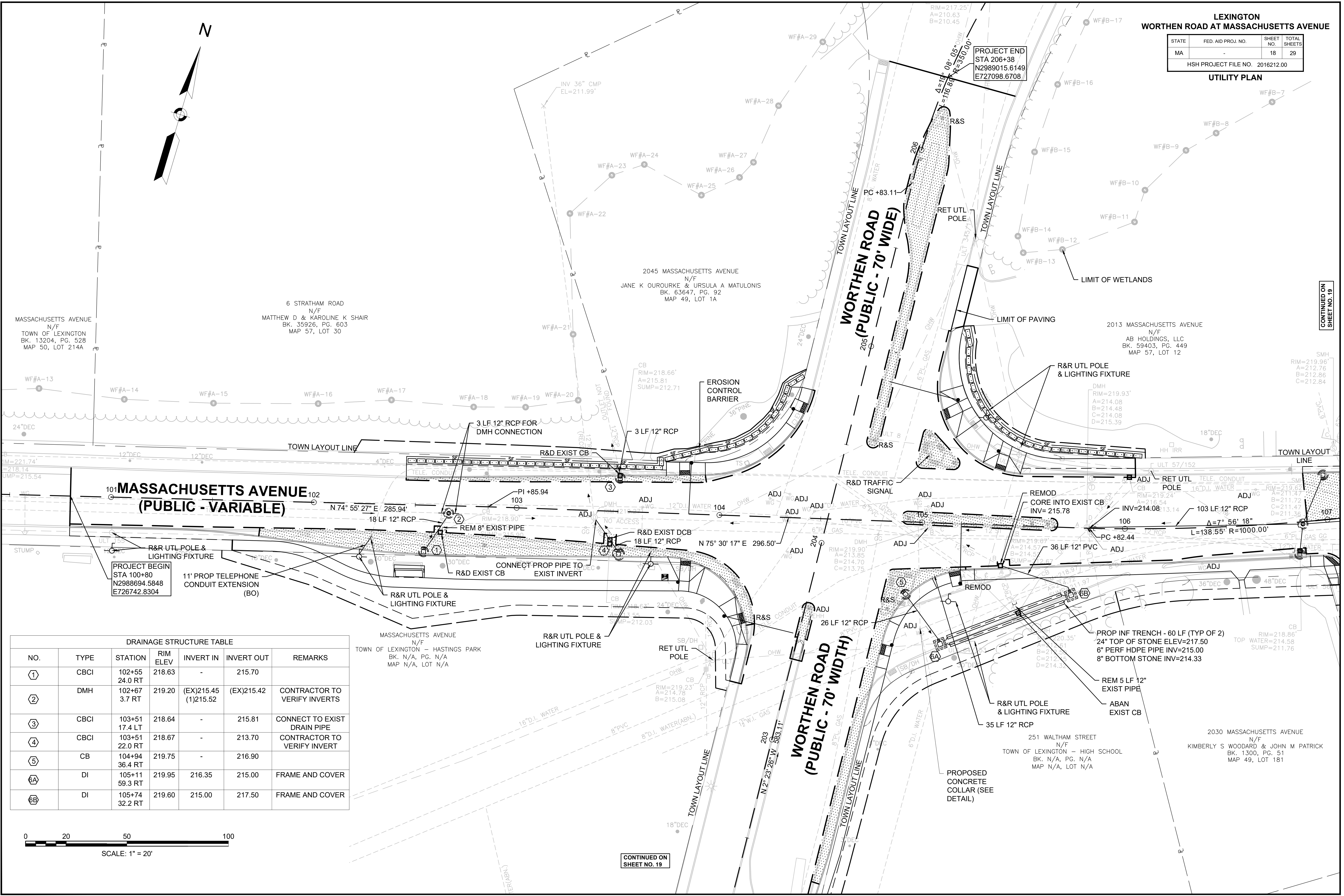
LEXINGTON
WORTHEN ROAD AT MASSACHUSETTS AVENUE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	18	29

HSH PROJECT FILE NO. 2016212.00

UTILITY PLAN

CONTINUED ON
SHEET NO. 19



MASSACHUSETTS AVENUE
(PUBLIC - VARIABLE)

WORTHEN ROAD
(PUBLIC - 70' WIDE)

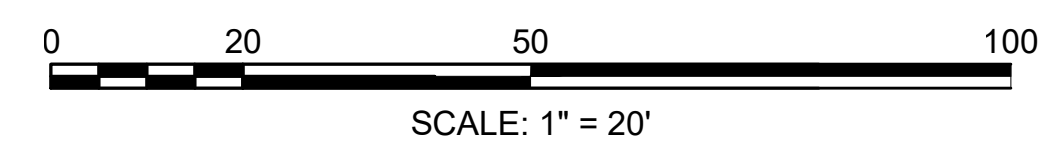
WORTHEN ROAD
(PUBLIC - 70' WIDE)

PROJECT BEGIN
STA 100+80
N2988694.5848
E726742.8304

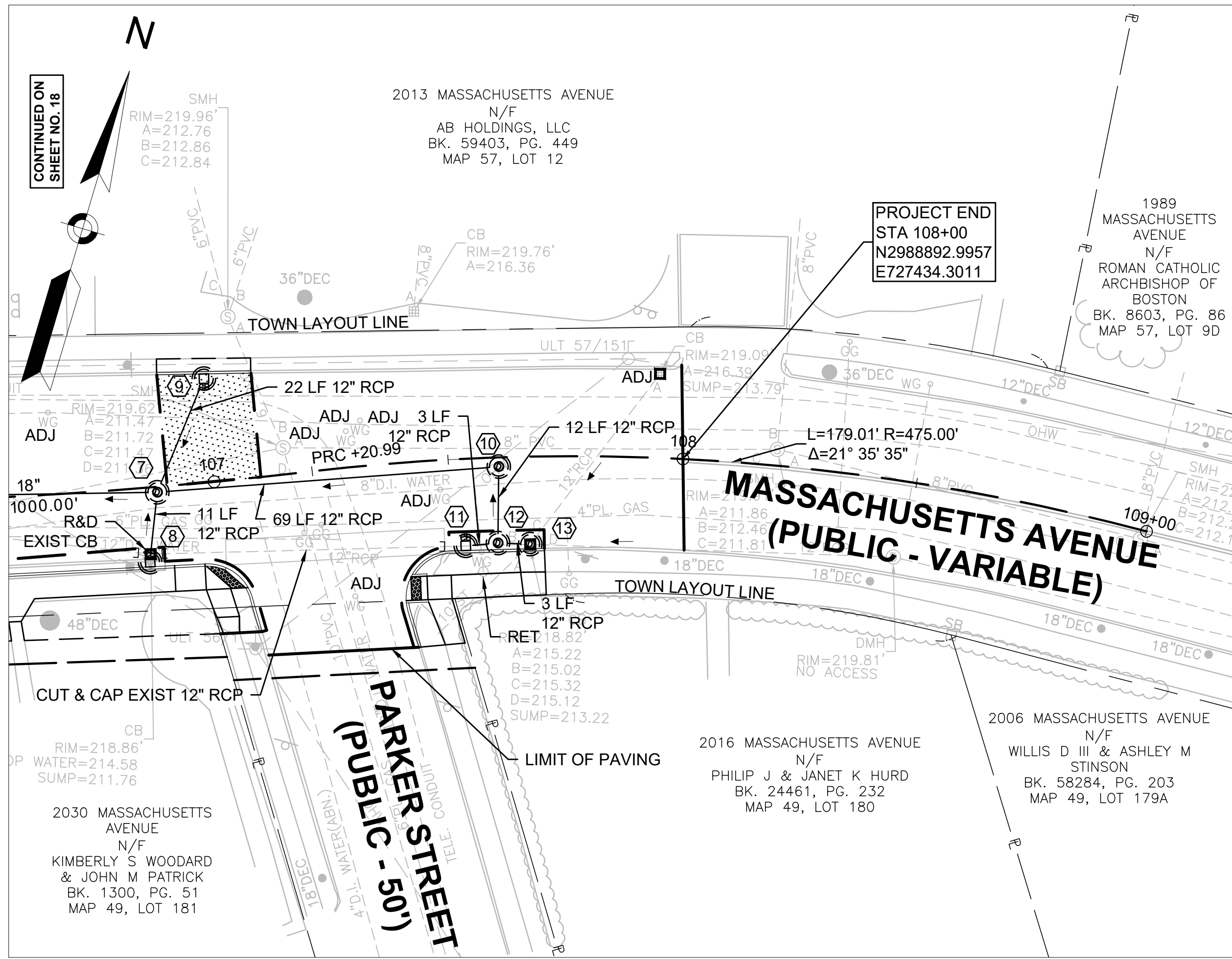
PROJECT END
STA 206+38
N2989015.6149
E727098.6708

DRAINAGE STRUCTURE TABLE

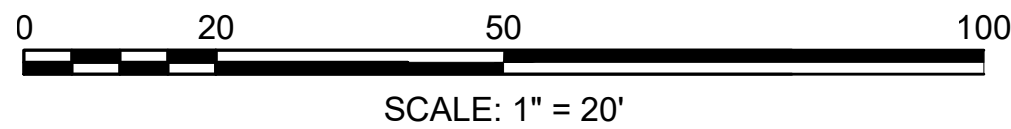
NO.	TYPE	STATION	RIM ELEV	INVERT IN	INVERT OUT	REMARKS
①	CBCI	102+55 24.0 RT	218.63	-	215.70	
②	DMH	102+67 3.7 RT	219.20	(EX)215.45 (1)215.52	(EX)215.42	CONTRACTOR TO VERIFY INVERTS
③	CBCI	103+51 17.4 LT	218.64	-	215.81	CONNECT TO EXIST DRAIN PIPE
④	CBCI	103+51 22.0 RT	218.67	-	213.70	CONTRACTOR TO VERIFY INVERT
⑤	CB	104+94 36.4 RT	219.75	-	216.90	
6A	DI	105+11 59.3 RT	219.95	216.35	215.00	FRAME AND COVER
6B	DI	105+74 32.2 RT	219.60	215.00	217.50	FRAME AND COVER



CONTINUED ON
SHEET NO. 19



DRAINAGE STRUCTURE TABLE						
NO.	TYPE	STATION	RIM ELEV	INVERT IN	INVERT OUT	REMARKS
7	DMH	106+88 0.8 RT	219.53	(8)214.60 (9)215.87 (10)214.59	214.59	CONTRACTOR TO VERIFY INVERTS
8	CBCI	106+85 16.9 RT	218.83	-	214.70	
9	CBCI	107+00 21.97 RT	219.16	-	216.31	CONTRACTOR TO VERIFY INVERT
10	DMH	107+61 2.0 RT	219.65	(12)214.94	214.94	
11	CBCI	107+52 19.5 RT	219.05	-	216.00	
12	DMH	107+60 18.2 RT	219.06	(11)215.95 (13)215.00	215.00	
13	CIT	107+67 18.6 RT	219.07	(EXIST DMH)215.12 (EXIST CB)215.32 (EXIST 10" ST)215.22	215.02	CB TO DMH

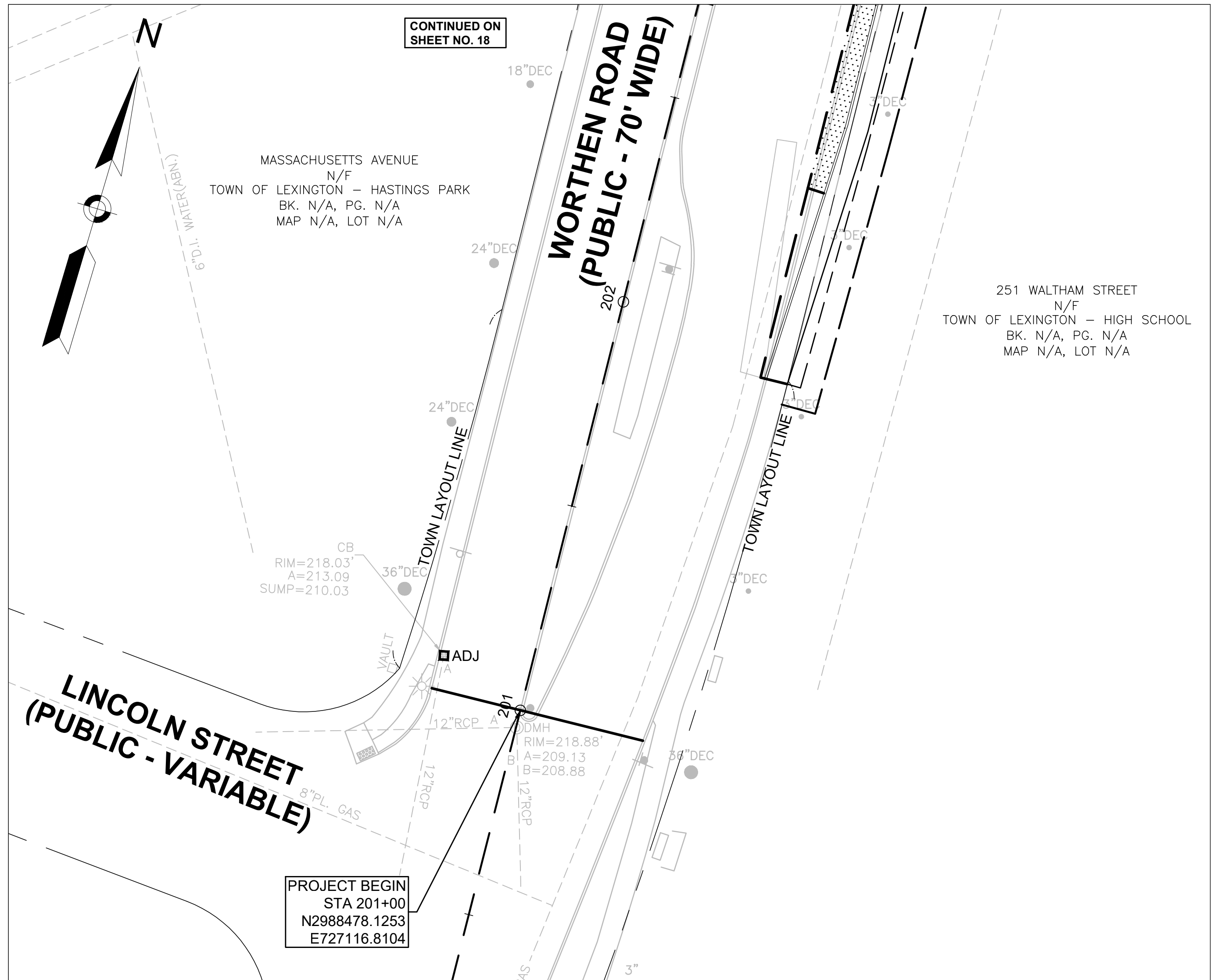


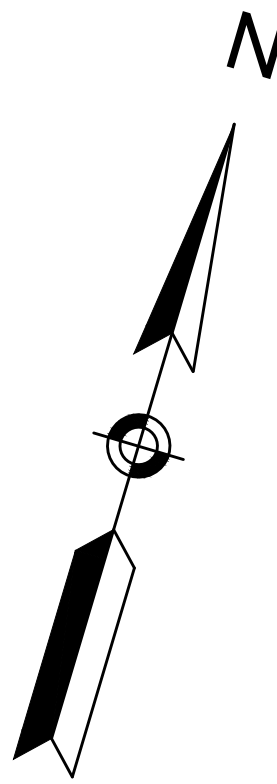
LEXINGTON

WORTHEN ROAD AT MASSACHUSETTS AVENUE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	19	29
HSH PROJECT FILE NO. 2016212.00			

UTILITY PLAN





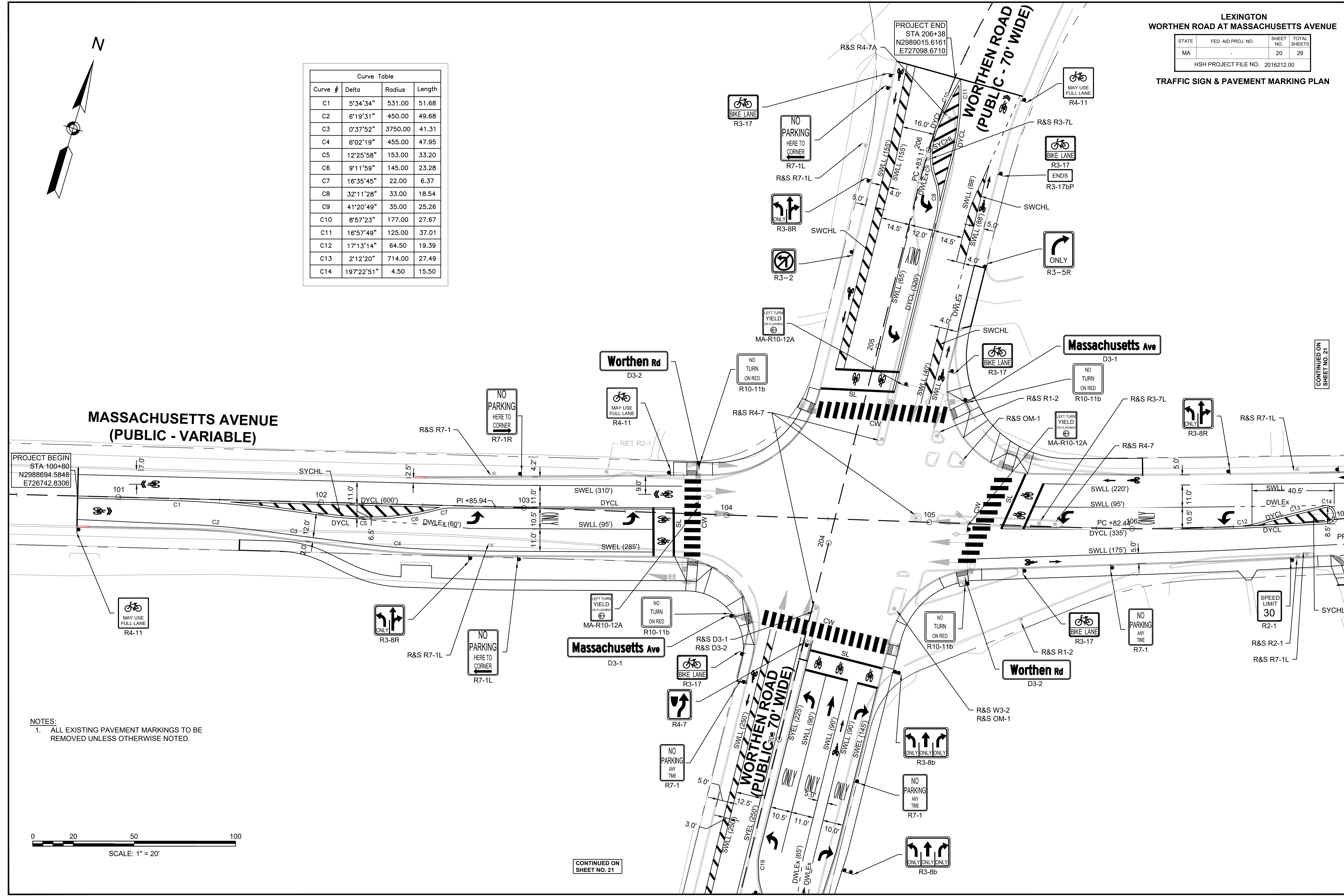
Curve Table			
Curve #	Delta	Radius	Length
C1	5°34'34"	531.00	51.68
C2	6°19'31"	450.00	49.68
C3	0°37'52"	3750.00	41.31
C4	6°02'19"	455.00	47.95
C5	12°25'58"	153.00	33.20
C6	9°11'59"	145.00	23.28
C7	16°35'45"	22.00	6.37
C8	32°11'28"	33.00	18.54
C9	41°20'49"	35.00	25.26
C10	8°57'23"	177.00	27.67
C11	16°57'49"	125.00	37.01
C12	17°13'14"	64.50	19.39
C13	2°12'20"	714.00	27.49
C14	19°22'51"	4.50	15.50

LEXINGTON
WORTHEN ROAD AT MASSACHUSETTS AVENUE

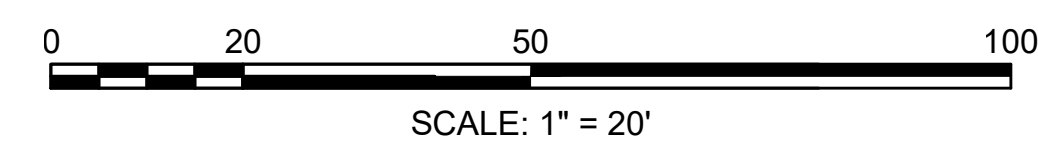
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	20	29

HSH PROJECT FILE NO. 2016212.00

TRAFFIC SIGN & PAVEMENT MARKING PLAN



NOTES:
1. ALL EXISTING PAVEMENT MARKINGS TO BE REMOVED UNLESS OTHERWISE NOTED.



CONTINUED ON
SHEET NO. 21

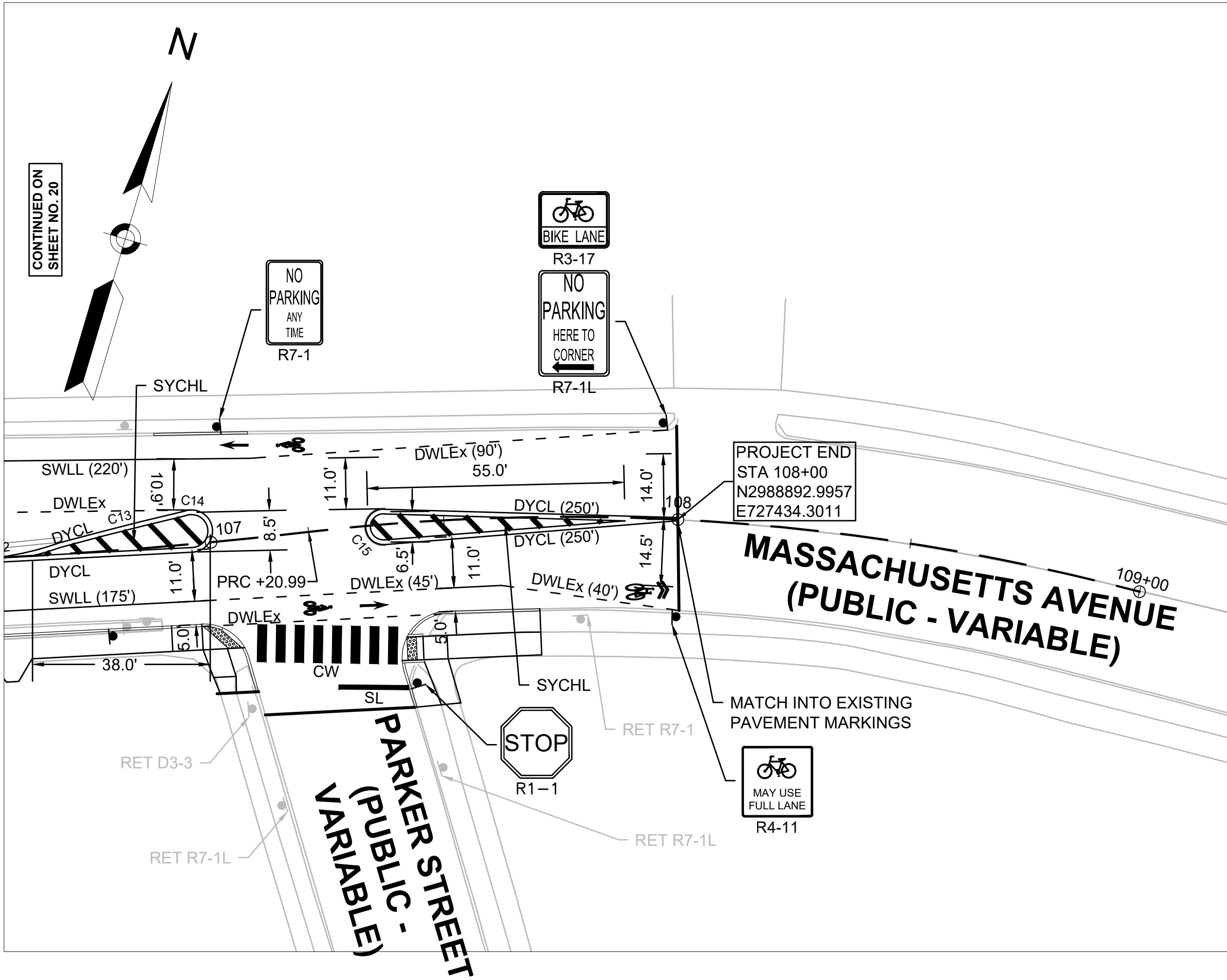
CONTINUED ON
SHEET NO. 21

LEXINGTON
WORTHEN ROAD AT MASSACHUSETTS AVENUE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	21	29
HSH PROJECT FILE NO. 2016212.00			

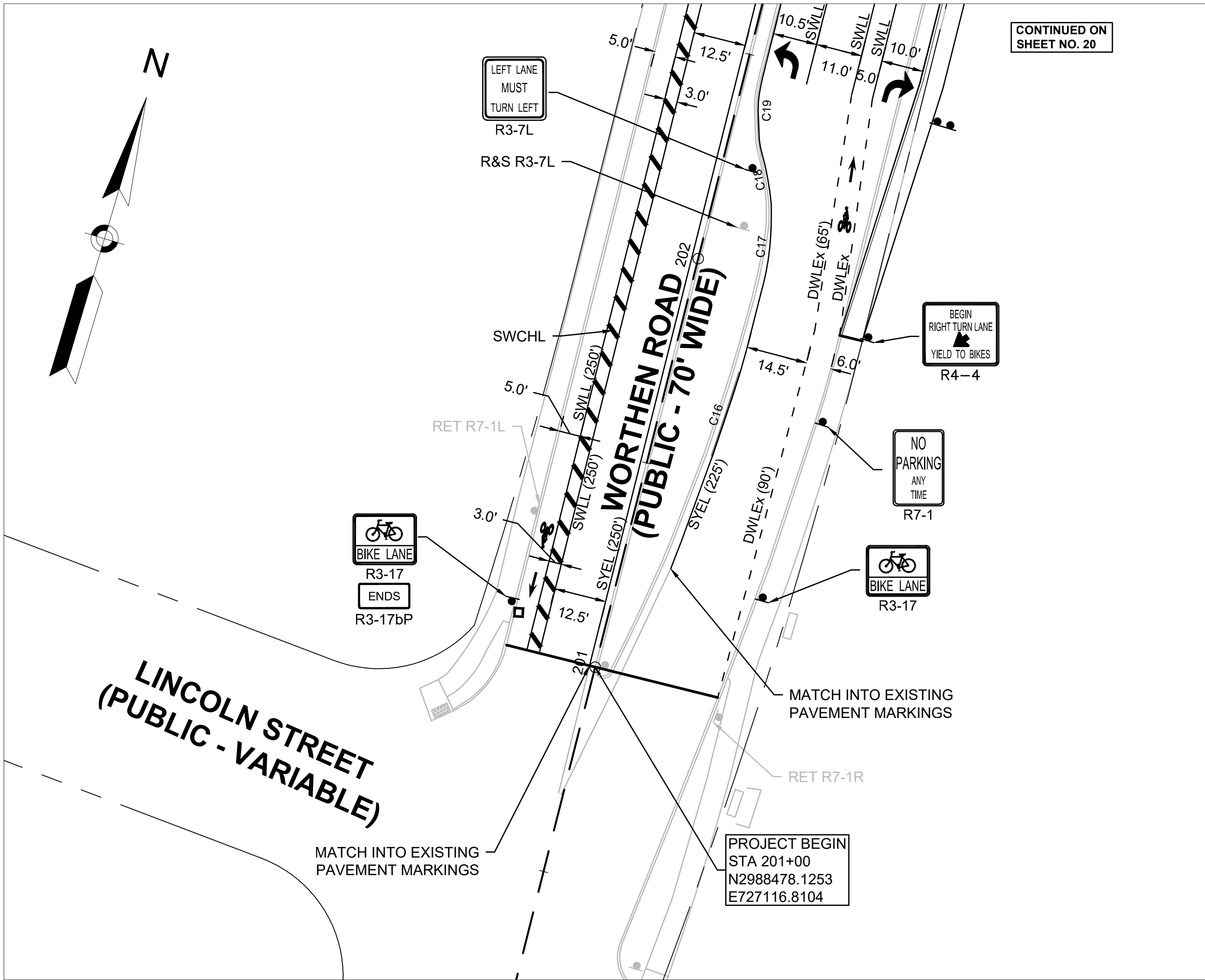
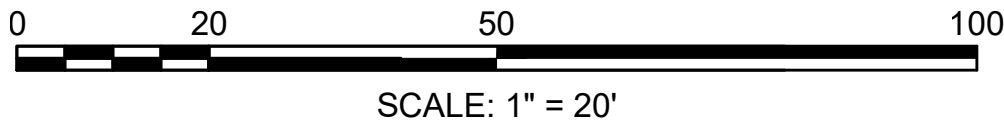
TRAFFIC SIGN & PAVEMENT MARKING PLAN

Curve Table			
Curve #	Delta	Radius	Length
C13	2°12'20"	714.00	27.49
C14	19°7'22"51"	4.50	15.50
C15	191°32'03"	4.00	13.37



Curve Table			
Curve #	Delta	Radius	Length
C16	1°33'01"	778.00	21.05
C17	17°15'12"	70.00	21.08
C18	8°15'01"	83.00	11.95
C19	28°10'23"	42.00	20.65

- NOTES:
1. ALL EXISTING PAVEMENT MARKINGS TO BE REMOVED UNLESS OTHERWISE NOTED
 2. ALL EXISTING SIGNAGE TO BE REMOVED UNLESS OTHERWISE NOTED



TRAFFIC SIGN SUMMARY													
IDENTIFI- CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK- GROUND	LEGEND	BORDER			
D3-1	60"	12"	<div>Massachusetts Ave</div>	TOWN STANDARDS			2	GREEN	WHITE	WHITE	MOUNT ON MAST ARM POLE(2)	5.00	10.00
D3-2	42"	12"	<div>Worthen Rd</div>	TOWN STANDARDS			2	GREEN	WHITE	WHITE	MOUNT ON MAST ARM POLE(2)	3.50	7.00
R1-1	30"	30"	<div>STOP</div>	①	①	①	1	RED	WHITE	WHITE	P5 (1)	6.25	6.25
R2-1	18"	24"	<div>SPEED LIMIT 30</div>				1	WHITE	BLACK	BLACK	P5 (1)	3.00	3.00
R3-2	24"	24"	<div></div>				1	WHITE	BLACK/ RED	BLACK	P5 (1)	4.00	4.00
R3-5R	30"	36"	<div></div>				1	WHITE	BLACK	BLACK	P5 (1)	7.50	7.50
R3-7L	30"	30"	<div>LEFT LANE MUST TURN LEFT</div>				1	WHITE	BLACK	BLACK	P5 (1)	6.25	6.25
R3-8B	48"	30"	<div></div>				2	WHITE	BLACK	BLACK	MOUNT ON DOUBLE P5 (2)	10.00	20.00
R3-8R	30"	30"	<div></div>				3	WHITE	BLACK	BLACK	P5 (3)	6.25	18.75
R3-17	24"	18"	<div></div>				8	WHITE	BLACK	BLACK	P5 (8)	3.00	24.00
R3-17bP	24"	8"	<div>ENDS</div>				2	WHITE	BLACK	BLACK	P5 (0)	1.33	2.66
R4-4	36"	30"	<div>BEGIN RIGHT TURN LANE YIELD TO BIKES</div>				1	WHITE	BLACK	BLACK	P5 (1)	7.50	7.50
R4-7	24"	30"	<div></div>				1	WHITE	WHITE	BLACK	P5 (1)	5.00	5.00
R4-11	30"	30"	<div></div>				3	WHITE	BLACK	BLACK	P5 (3)	6.25	18.75
R7-1	12"	18"	<div>NO PARKING ANY TIME</div>				5	WHITE	RED	RED	P5 (5)	1.50	7.50
R7-1L	12"	18"	<div>NO PARKING HERE TO CORNER</div>				3	WHITE	RED	RED	P5 (2)	1.50	4.50
R7-1R	12"	18"	<div>NO PARKING HERE TO CORNER</div>				1	WHITE	RED	RED	P5 (1)	1.50	1.50
R10-11b	36"	36"	<div>NO TURN ON RED</div>				4	WHITE	WHITE	BLACK	MOUNT ON MAST ARM POST	9.00	36.00
R10-12A	30"	36"	<div>LEFT TURN YIELD ON FLASHING</div>	MASSDOT STANDARDS			4	WHITE	WHITE	BLACK	MOUNT ON MAST ARM	7.50	30.00

① SEE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND AMENDMENTS FOR LATEST SPECIFICATIONS ON TEXT, DIMENSIONS, AND COLOR. ALSO REFER TO 1995 MASSDOT STANDARD SPECIFICATIONS SECTION M 9.30.0

LEXINGTON
WORTHEN ROAD AT MASSACHUSETTS AVENUE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	22	29

SHS PROJECT FILE NO. 2016212.00

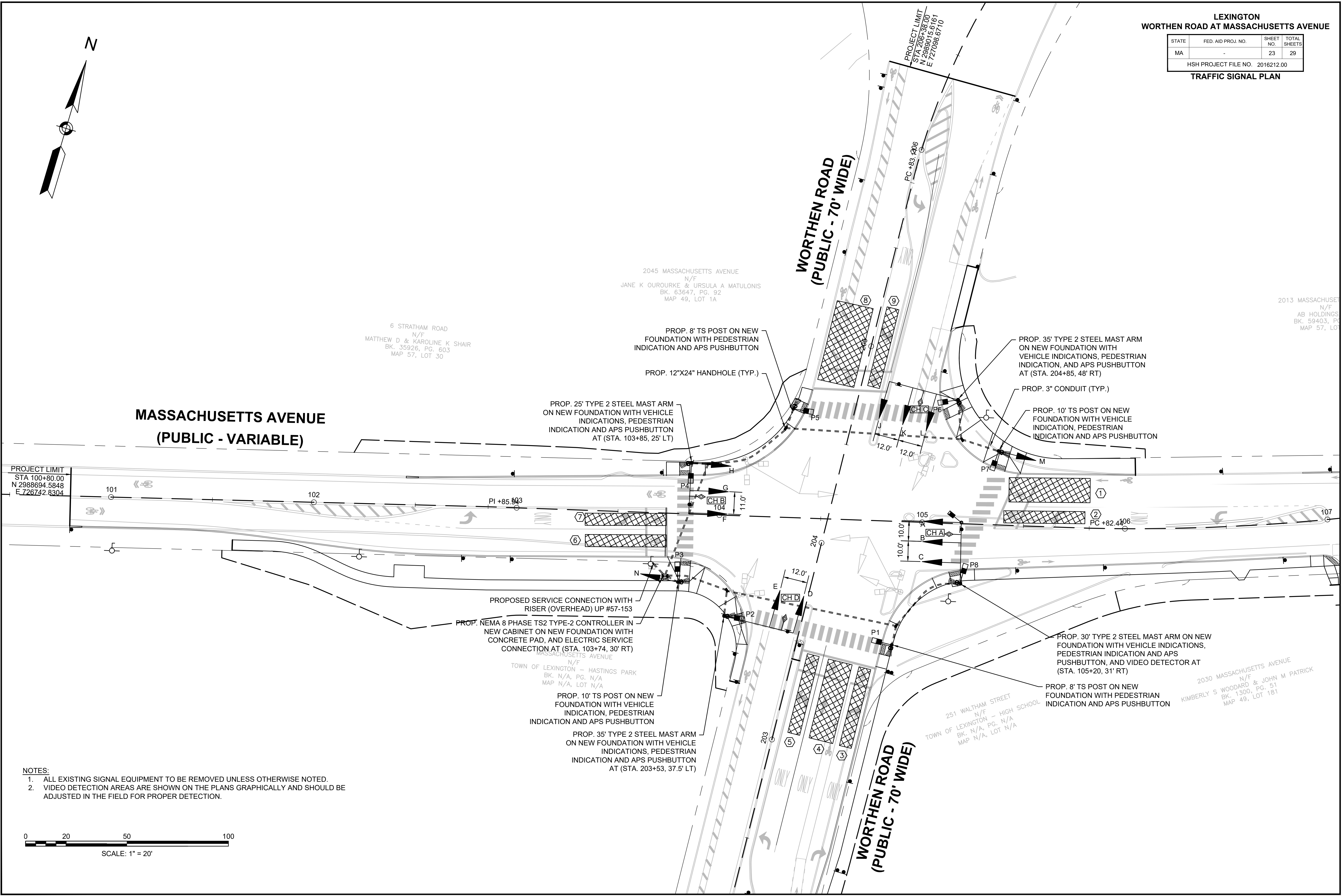
SIGN SUMMARY

LEXINGTON
WORTHEN ROAD AT MASSACHUSETTS AVENUE

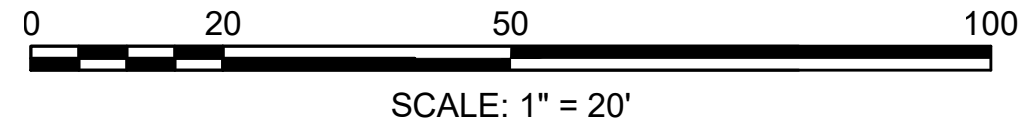
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	23	29

HSH PROJECT FILE NO. 2016212.00

TRAFFIC SIGNAL PLAN



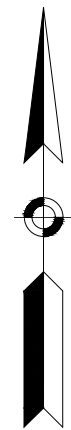
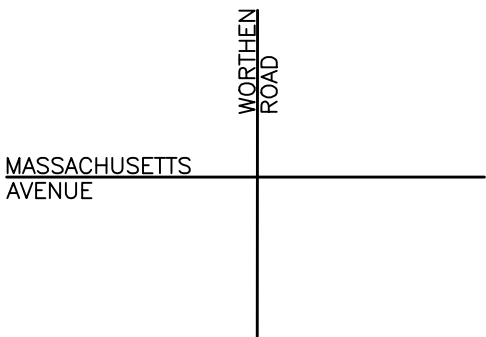
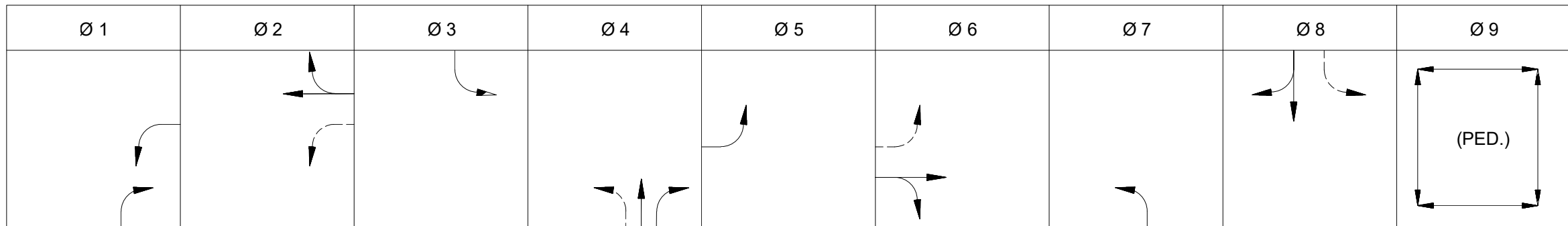
- NOTES:
1. ALL EXISTING SIGNAL EQUIPMENT TO BE REMOVED UNLESS OTHERWISE NOTED.
 2. VIDEO DETECTION AREAS ARE SHOWN ON THE PLANS GRAPHICALLY AND SHOULD BE ADJUSTED IN THE FIELD FOR PROPER DETECTION.



LEXINGTON
WORTHEN ROAD AT MASSACHUSETTS AVENUE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	24	29
HSH PROJECT FILE NO. 2016212.00			

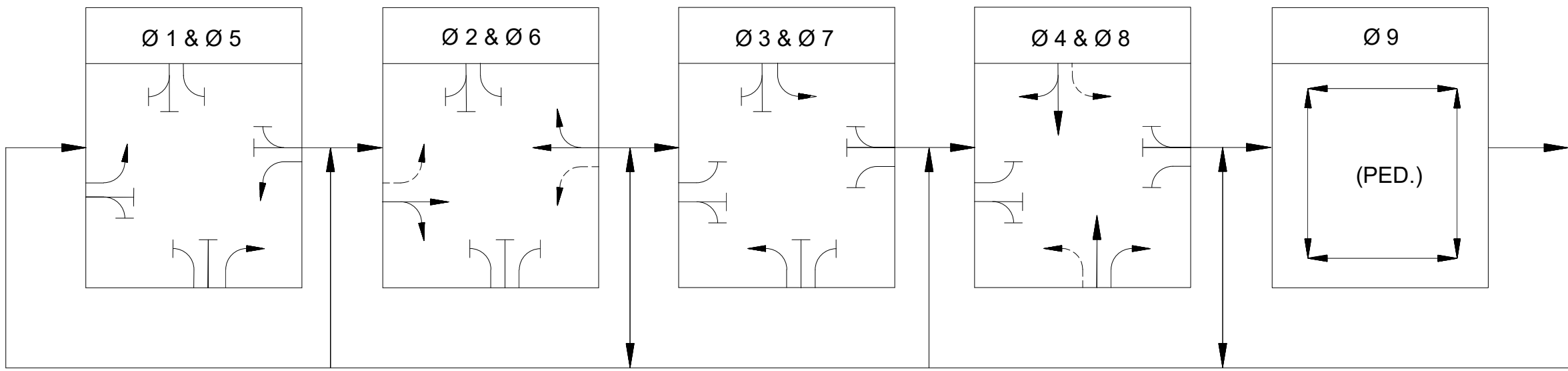
TRAFFIC SIGNAL PLAN

APPROX. NORTH																																
SEQUENCE AND TIMING FOR FULLY-ACTUATED CONTROL (ISOLATED)																																
STREET		DIRECTION	HOUSINGS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	FLASH OPER.	
MASSACHUSETTS AVENUE		EB	A	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	GL	YL	RL	FYL	YL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	FRL	
MASSACHUSETTS AVENUE		EB	B,C,N	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	FR	
MASSACHUSETTS AVENUE		WB	F	GL	YL	RL	FYL	YL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	FRL	
MASSACHUSETTS AVENUE		WB	G,H,M	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FR	
WORTHEN ROAD		NB	J	RL	RL	RL	RL	RL	RL	R	R	R	FYL	YL	RL	RL	RL	RL	RL	RL	GL	YL	RL	RL	RL	RL	RL	RL	RL	RL	FRL	
WORTHEN ROAD		NB	K	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FY	
WORTHEN ROAD		NB	L	GR	YR	R	R	R	R	R	R	R	G-GR	Y-YR	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FY	
WORTHEN ROAD		SB	D	R	R	R	R	R	R	GL	YL	RL	R	R	R	R	R	R	R	R	R	R	R	R	FYL	YL	RL	R	R	R	FY	
WORTHEN ROAD		SB	E	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	FY	
PEDESTRIAN		ALL	ALL	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	OFF	
TIMING IN SECONDS																																
MINIMUM GREEN (INITIAL)				8			10			5			10			8			10			5			10			-				
PASSAGE TIME (VEHICLE)				3			3			3			3			3			3			3			3			-				
MAXIMUM 1 (6-10 A.M.); ALL OTHER TIMES				16			30			11			47			15			32			11			36			-				
MAXIMUM 2 (3-7 P.M.)				16			32			11			46			15			32			11			35			-				
YELLOW CLEARANCE					3			4			3			4			3			4			3			4			-			
RED CLEARANCE						3.5			2.5			3			2			3.5			2.5			3			2			4		
WALK (W)																											7					
PEDESTRIAN CLEARANCE																													15			
RECALL				NONE		MIN		NONE		MIN		NONE		MIN		NONE		MIN		NONE		MIN		NONE		MIN		-				
MEMORY				-		-		-		-		-		-		-		-		-		-		-		-		-				
ONLY EMERGENCY																																

NOTES:

- EXCLUSIVE PEDESTRIAN TO BE ACTIVATED ONLY BY PEDESTRIAN ACTUATED PUSH BUTTON.

PROPOSED PREFERENTIAL PHASING SEQUENCE



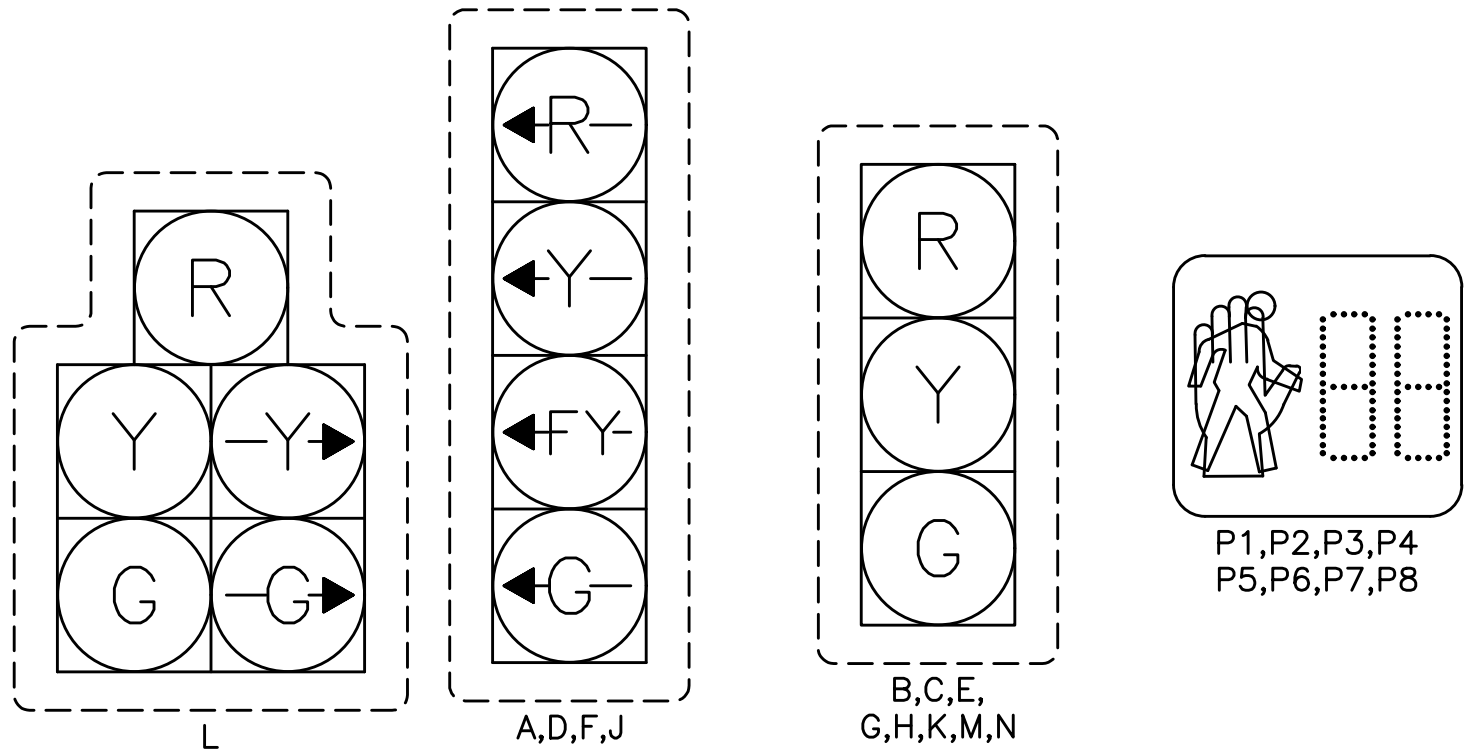
EMERGENCY PREEMPTION SCHEDULE

APPROACH	CHANNEL	PREEMPTION PHASE	NEXT PHASE CALLED
EASTBOUND	A	5+6	4+8
WESTBOUND	B	1+2	4+8
NORTHBOUND	C	4+7	4+8
SOUTHBOUND	D	3+8	1+5

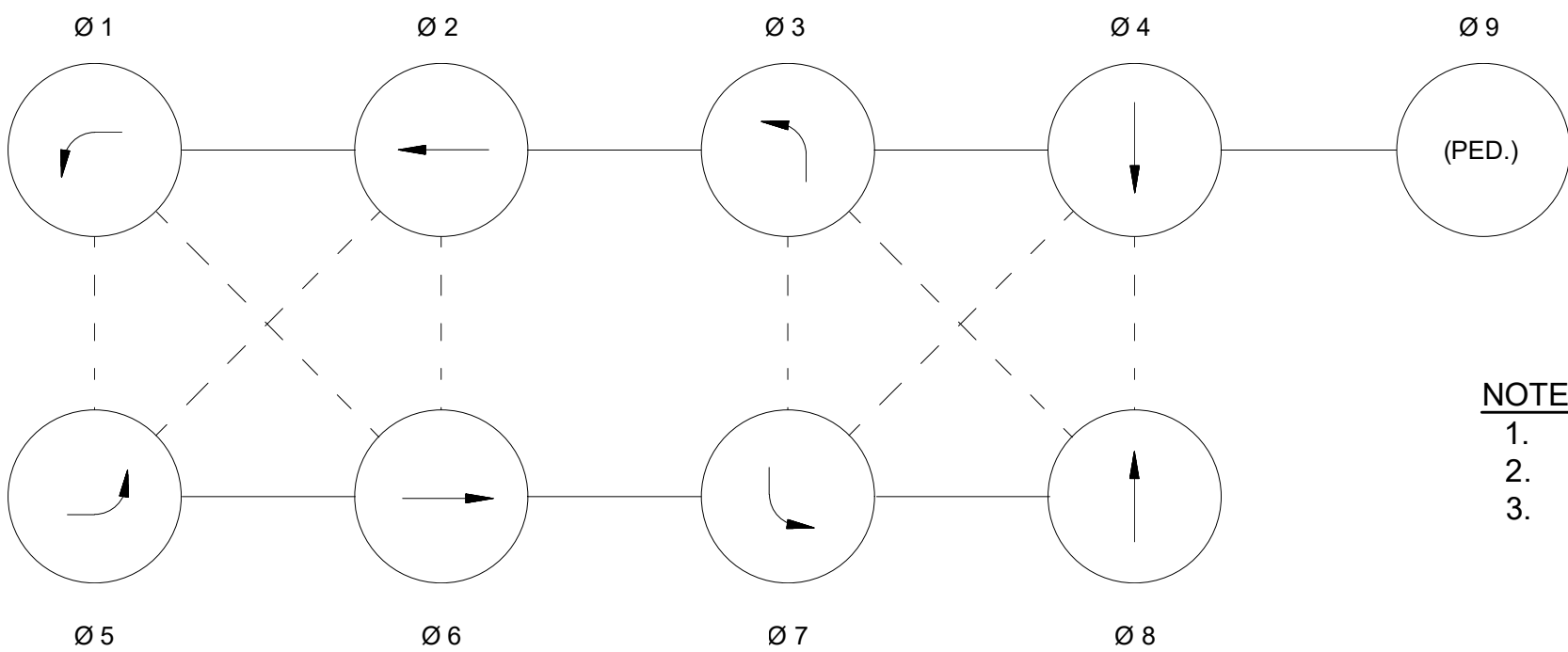
VIDEO DETECTION DATA

VIDEO DETECTOR NUMBER	DETECTION ZONE AREA	Ø CALLED	Ø EXT.	MODE	DELAY TIME	EXT. TIME
①	12' X 40'	Ø 2	Ø 2	PRESENCE	0	0
②	6' X 40'	Ø 1	Ø 1	PRESENCE	0	0
③	6' X 40'	Ø 4	Ø 4	PRESENCE	0	0
④	12' X 40'	Ø 4	Ø 4	PRESENCE	0	0
⑤	6' X 40'	Ø 7	Ø 7	PRESENCE	0	0
⑥	6' X 40'	Ø 6	Ø 6	PRESENCE	0	0
⑦	6' X 40'	Ø 5	Ø 5	PRESENCE	0	0
⑧	18' X 40'	Ø 8	Ø 8	PRESENCE	0	0
⑨	6' X 40'	Ø 3	Ø 3	PRESENCE	0	0

SIGNAL IDENTIFICATION



NEMA DUAL RING PHASING NOTES:



NOTES:

- PHASES ASSOCIATED BY A SOLID LINE SHALL NOT OPERATE CONCURRENTLY.
- PHASES ASSOCIATED BY A DASHED LINE MAY OPERATED CONCURRENTLY.
- IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT SHALL NOT CHANGE DURING THE CHANGE INTERVAL(S) UNLESS OTHERWISE NOTED.

NOTES:

- ALL NEW VEHICLE INDICATIONS SHALL BE 12" L.E.D. AND SHALL BE EQUIPPED WITH CUT AWAY VISORS.
- ALL NEW VEHICLE INDICATIONS SHALL HAVE 5" NON LOUVERED BACK PLATES WITH 3" RETROREFLECTIVE BORDER.
- ALL NEW PEDESTRIAN INDICATIONS SHALL BE 16" L.E.D. AND SHALL COUNTDOWN AND BE EQUIPPED WITH SUN CAP VISORS.

RECOMMENDED ADVANCE WARNING SIGN MINIMUM SPACING			
ROAD TYPE	DISTANCE BETWEEN SIGNS**		
	A	B	C
LOCAL OR LOW VOLUME ROADWAYS*	350 FEET	350 FEET	350 FEET
MOST OTHER ROADWAYS*	500 FEET	500 FEET	500 FEET
EXPRESSWAY/FREEWAY	1,000 FEET	1,500 FEET	2,640 FEET

* ROAD TYPE TO BE DETERMINED BY THE MASSDOT OFFICE OF TRANSPORTATION PLANNING.

** DISTANCES ARE SHOWN IN FEET. THE COLUMN HEADINGS A, B, AND C ARE THE DIMENSIONS SHOWN IN THE DETAIL/TYPICAL SETUP FIGURES. THE A DIMENSION IS THE DISTANCE FROM THE TRANSITION OR POINT OF RESTRICTION TO THE FIRST SIGN. THE B DIMENSION IS THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS. THE C DIMENSION IS THE DISTANCE BETWEEN THE SECOND AND THIRD SIGNS. (THE "THIRD" SIGN IS THE FIRST ONE TYPICALLY ENCOUNTERED BY A DRIVER APPROACHING A TEMPORARY TRAFFIC CONTROL (TTC) ZONE.)

THE "THIRD" SIGN ABOVE IS TYPICALLY REFERRED TO AS AN "ADVANCE WARNING" SIGN ON THE TTCZ SETUPS. THESE ADVANCE WARNING SIGNS ARE LOCATED PRIOR TO THE PROJECT LIMITS ON ALL APPROACHES (i.e. THE W20-1 SERIES (ROAD WORK XX FT) SIGNS) AND USUALLY REMAIN FOR THE DURATION OF THE PROJECT. ADDITIONAL SIGNS (i.e. "RIGHT LANE CLOSED 1 MILE" AND "LEFT LANE CLOSED 1 MILE") HAVE BEEN SHOWN IN SOME FIGURES AS EXAMPLES OF REINFORCEMENT SIGN PLACEMENT BUT ARE USED IN RARE OCCASIONS.

THE FIRST AND SECOND WARNING SIGNS ABOVE REFERRED TO TO AS THE OPERATIONAL (DAY-TO-DAY) WORK ZONE SIGNS AND MAY BE MOVED DEPENDING ON WHERE THE SPECIFIC ROADWAY WORK FOR THAT DAY IS LOCATED.

R2-10a SIGNS SHALL BE PLACED BETWEEN THE SECOND AND THIRD SIGNS AS DESCRIBED ABOVE.

R2-10a, R2-10e, AND W20-1 SERIES SIGNS ARE TO BE INCLUDED ON ALL DETAILS/TYPICAL SETUPS.

TAPER LENGTH CRITERIA FOR TEMPORARY TRAFFIC CONTROL ZONES

TYPE OF TAPER	TAPER LENGTH
MERGING TAPER	AT LEAST L
SHIFTING TAPER	AT LEAST 0.5L
SHOULDER TAPER	AT LEAST 0.33L
ONE-LANE, TWO-WAY TRAFFIC TAPER	50 FEET MIN., 100 FEET MAX.
DOWNSTREAM TAPER	50 FEET MIN., 100 FEET MAX. PER LANE

NOTE: USE TABLE 6C-4 SHOWN BELOW TO CALCULATE L
SOURCE: TABLE 6C-3 2009 MUTCD

FORMULAS FOR DETERMINING TAPER LENGTHS

SPEED LIMIT (S)	TAPER LENGTH L (FT)
40 MPH OR LESS	$L = \frac{WS^2}{60}$
45 MPH OR MORE	$L = WS$

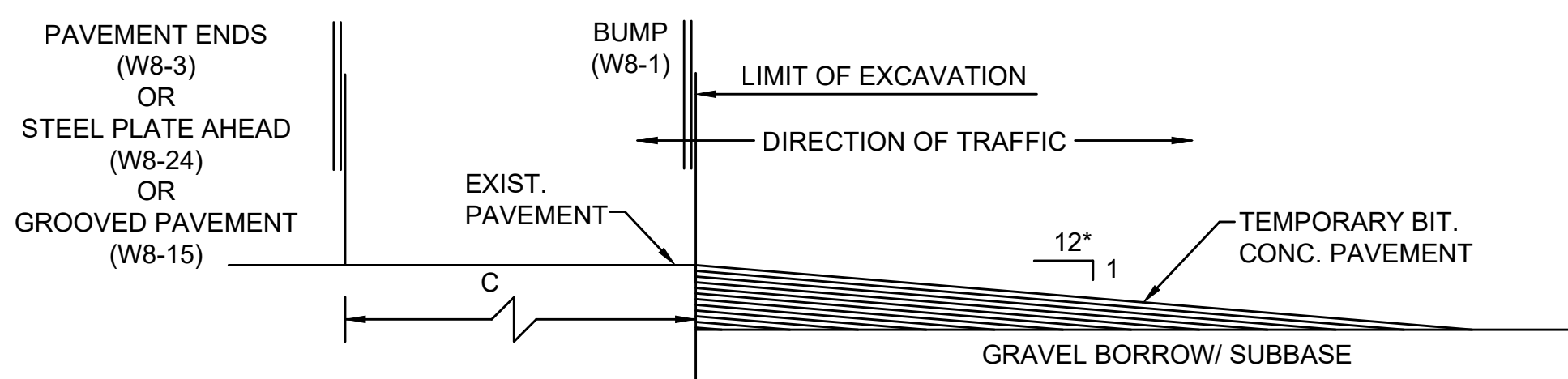
WHERE: L = TAPER LENGTH IN FEET

W = WIDTH OF OFFSET IN FEET

S = POSTED SPEED LIMIT, OR OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED IN MPH

SOURCE: TABLE 6C-4 2009 MUTCD

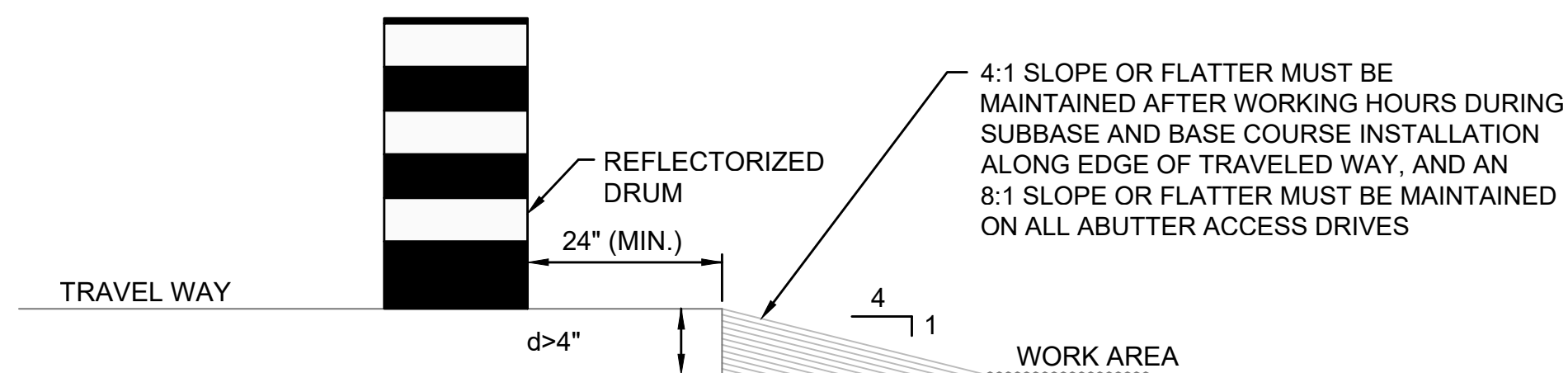
NOTES ON WORK ZONES DISTANCES (FIGURE GEN-3)



LONGITUDINAL DROP-OFF DETAIL (FIGURE GEN-6)

NOT TO SCALE

*INCREASE SLOPE RATIO FOR HIGHER SPEEDS



LATERAL DROP-OFF DETAIL (FIGURE GEN-6)

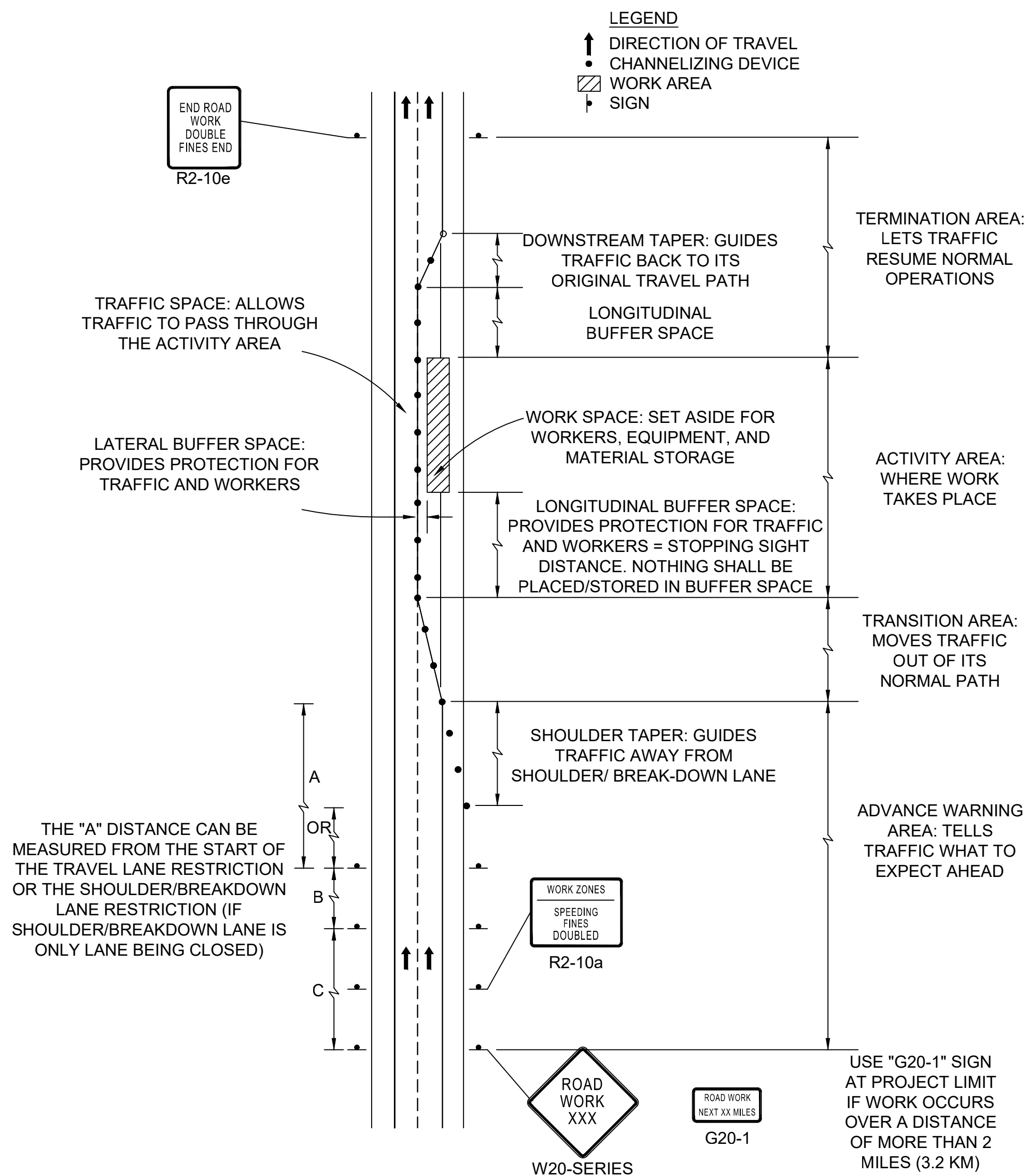
NOT TO SCALE

BUFFER SPACE TABLE

POSTED SPEED (MPH)	LENGTH (FT)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820

SOURCE: TABLE 6C-2 2009 MUTCD

NOTES ON WORK ZONE DISTANCES (FIGURE GEN-2)



COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL (TTC) ZONE (FIGURE GEN-4)

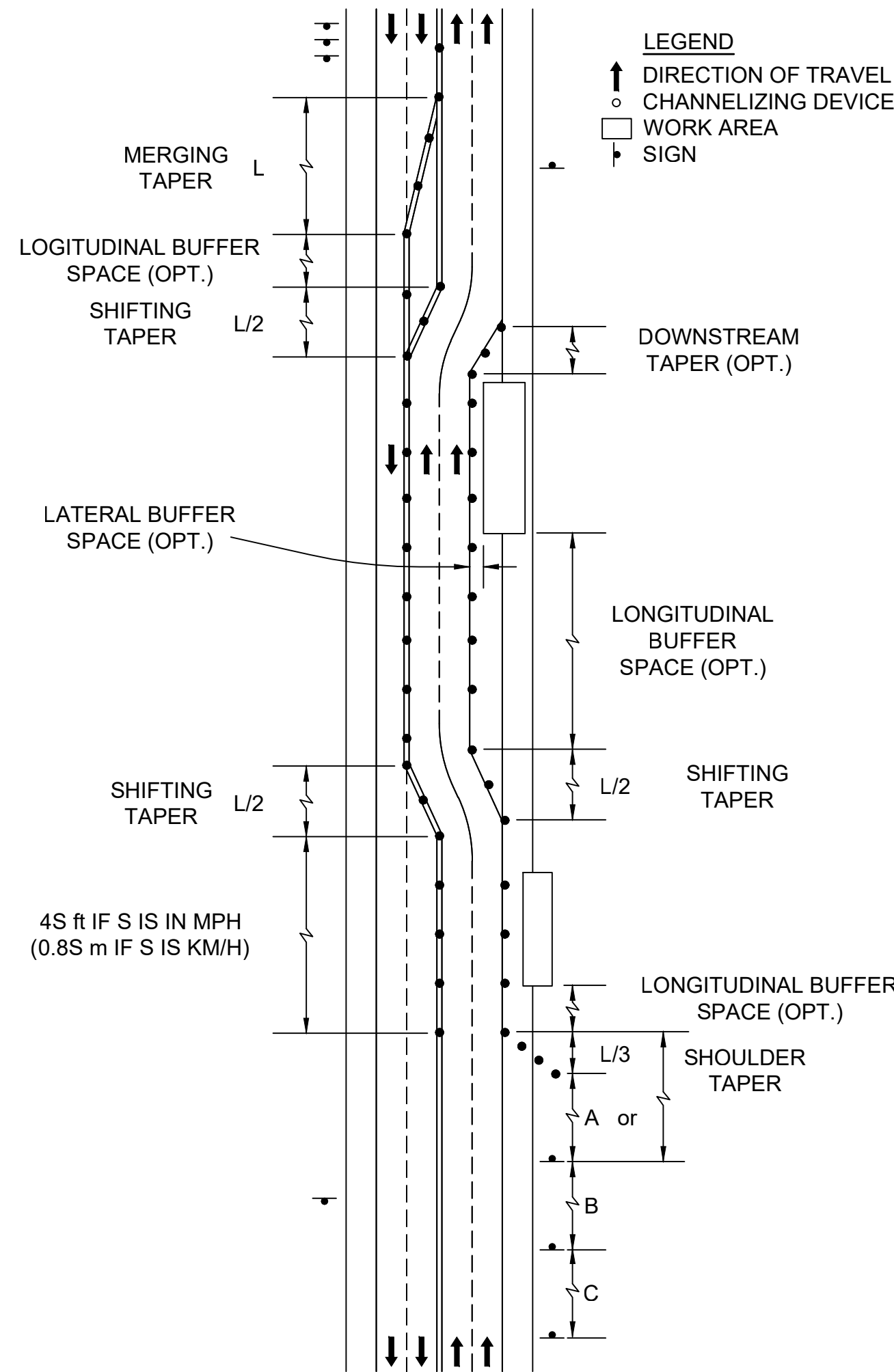
NOT TO SCALE

LEXINGTON WORTHEN ROAD AT MASSACHUSETTS AVENUE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	25	29

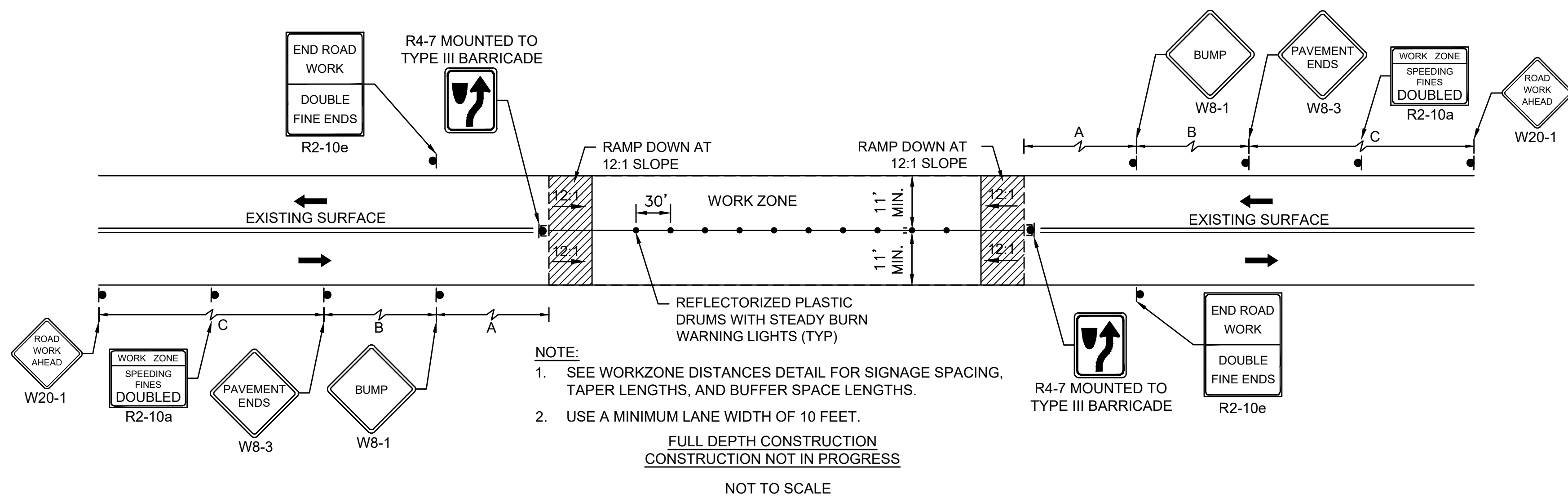
HSH PROJECT FILE NO. 2016212.00

TEMPORARY TRAFFIC CONTROL DETAILS



TYPES OF TAPERS AND BUFFER SPACES (FIGURE GEN-5)

NOT TO SCALE

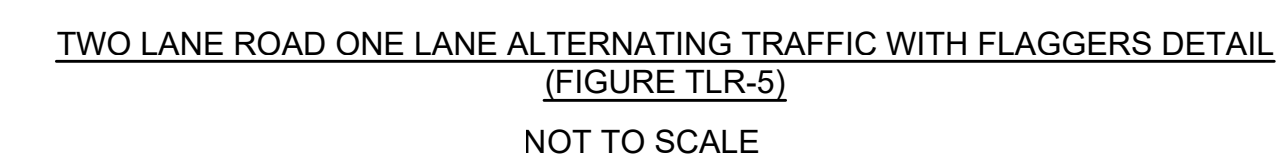
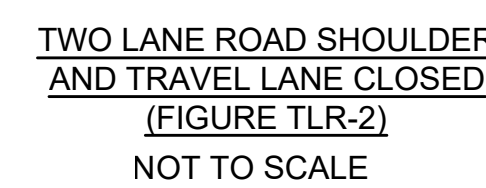
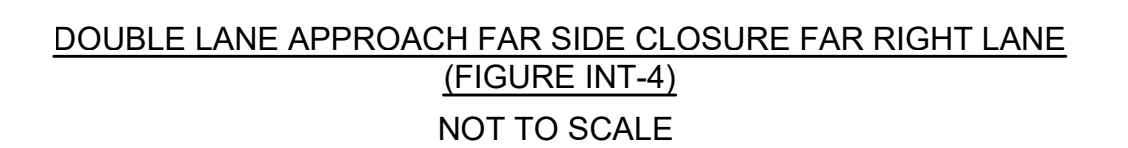
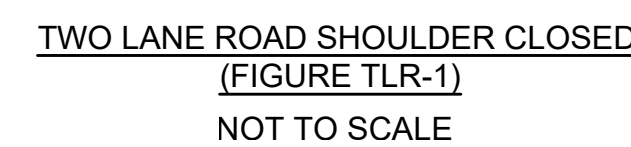
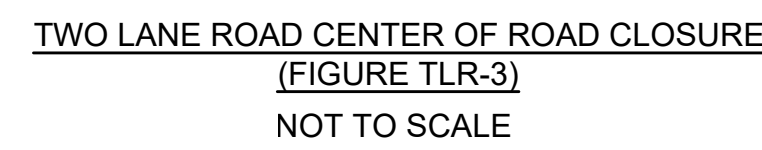


- NOTE:
- SEE WORKZONE DISTANCES DETAIL FOR SIGNAGE SPACING, TAPER LENGTHS, AND BUFFER SPACE LENGTHS.
 - USE A MINIMUM LANE WIDTH OF 10 FEET.

FULL DEPTH CONSTRUCTION
CONSTRUCTION NOT IN PROGRESS

NOT TO SCALE

LEXINGTON
WORTHEN ROAD AT MASSACHUSETTS AVENUE

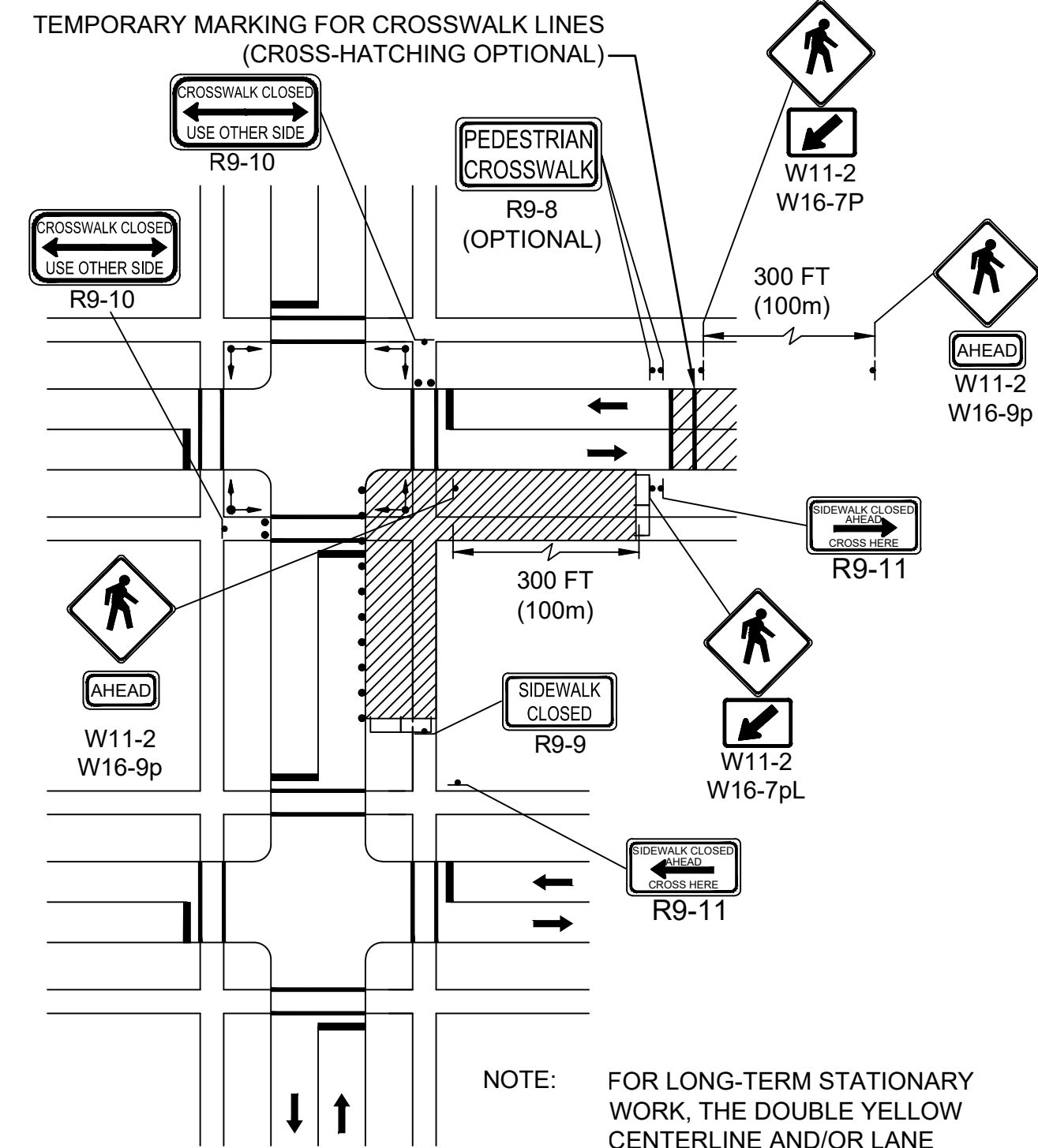


LEXINGTON
WORTHEN ROAD AT MASSACHUSETTS AVENUE

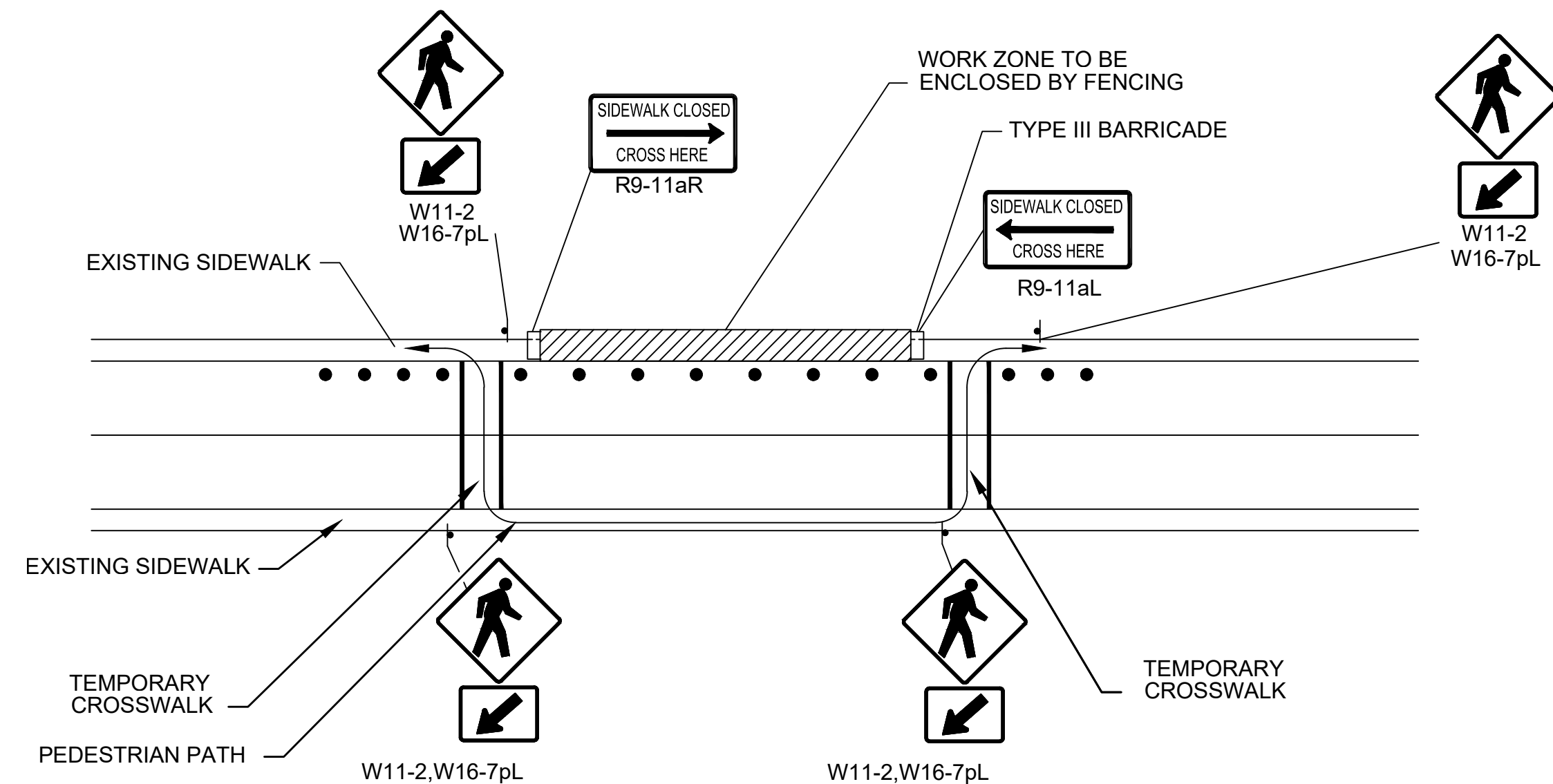
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	27	29

HSR PROJECT FILE NO. 2016212.00

TEMPORARY TRAFFIC CONTROL
DETAILS



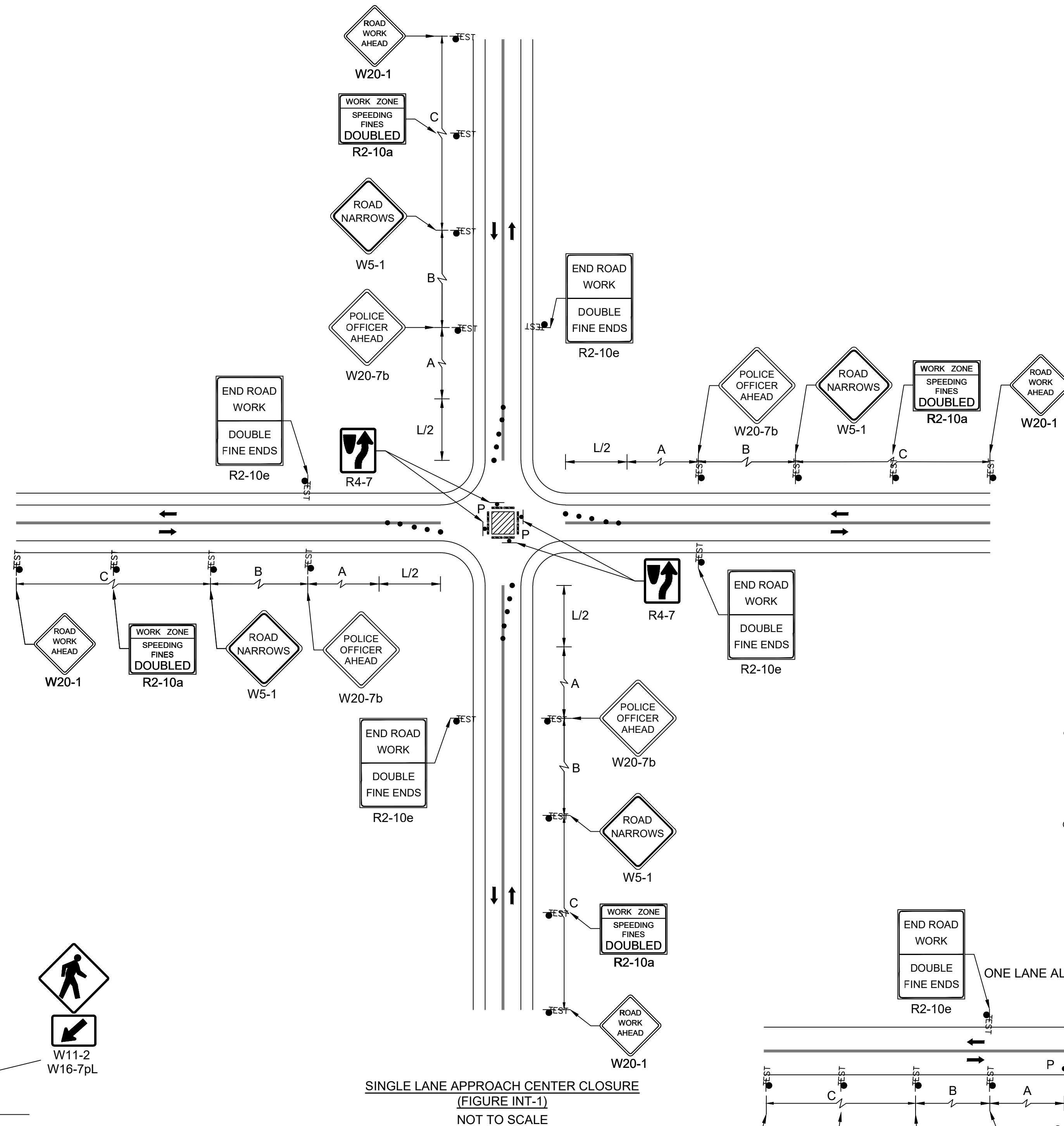
PEDESTRIAN DETOUR
(FIGURE PED-6)
NOT TO SCALE



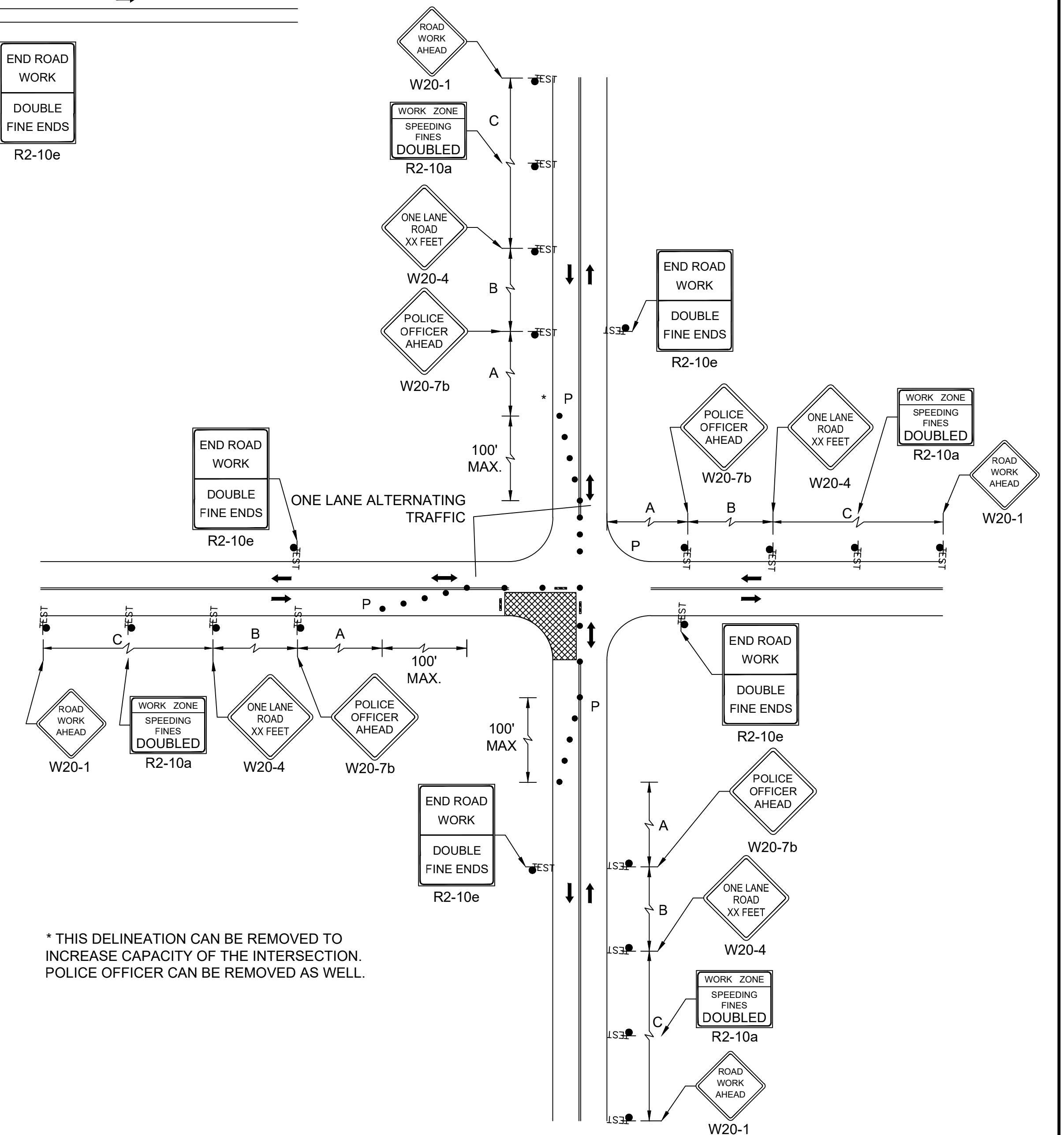
NOTES

1. ADDITIONAL ADVANCE WARNING MAY BE NECESSARY.
2. CONTROLS ONLY FOR PEDESTRIAN TRAFFIC ARE SHOWN. VEHICULAR TRAFFIC SHOULD BE HANDLED AS SHOWN ELSEWHERE.
3. STREET LIGHTING SHOULD BE CONSIDERED WHEN LOCATING CONTROL DEVICES.
4. TEMPORARY CROSSWALKS WITH APPROPRIATE SIGNS SHOULD BE INSTALLED TO CROSS PEDESTRIANS TO THE OPPOSITE SIDE OF THE STREET AS SHOWN IN PEDESTRIAN BYPASS DETAIL, AND AS DIRECTED BY THE ENGINEER. TEMPORARY CURB RAMPS WILL BE REQUIRED AT ALL TEMPORARY CROSSWALK LOCATIONS.
5. BYPASS IS TO BE USED IN CONJUNCTION WITH THE PROPOSED LANE CLOSURE DETAILS AND DURING CONSTRUCTION STAGING, AS DIRECTED BY THE ENGINEER.
6. THE TEMPORARY SIDEWALK SHOULD BE A MINIMUM OF 4 FEET WIDE. IF THIS WALKWAY EXCEEDS 200 FEET THEN A 5 FOOT X 5 FOOT PASSING ZONE. (FOR SHORT TERM SETUPS < 10 HOURS, THIS CONDITION MAY BE WAIVED. A NOTE WOULD NEED TO BE INCLUDED IN THE TTCP THAT STATES HOW THE CONTRACTOR SHOULD ADDRESS THIS ISSUE.)

PEDESTRIAN BYPASS
(FIGURE PED-7)
NOT TO SCALE



SINGLE LANE APPROACH CENTER CLOSURE
(FIGURE INT-1)
NOT TO SCALE

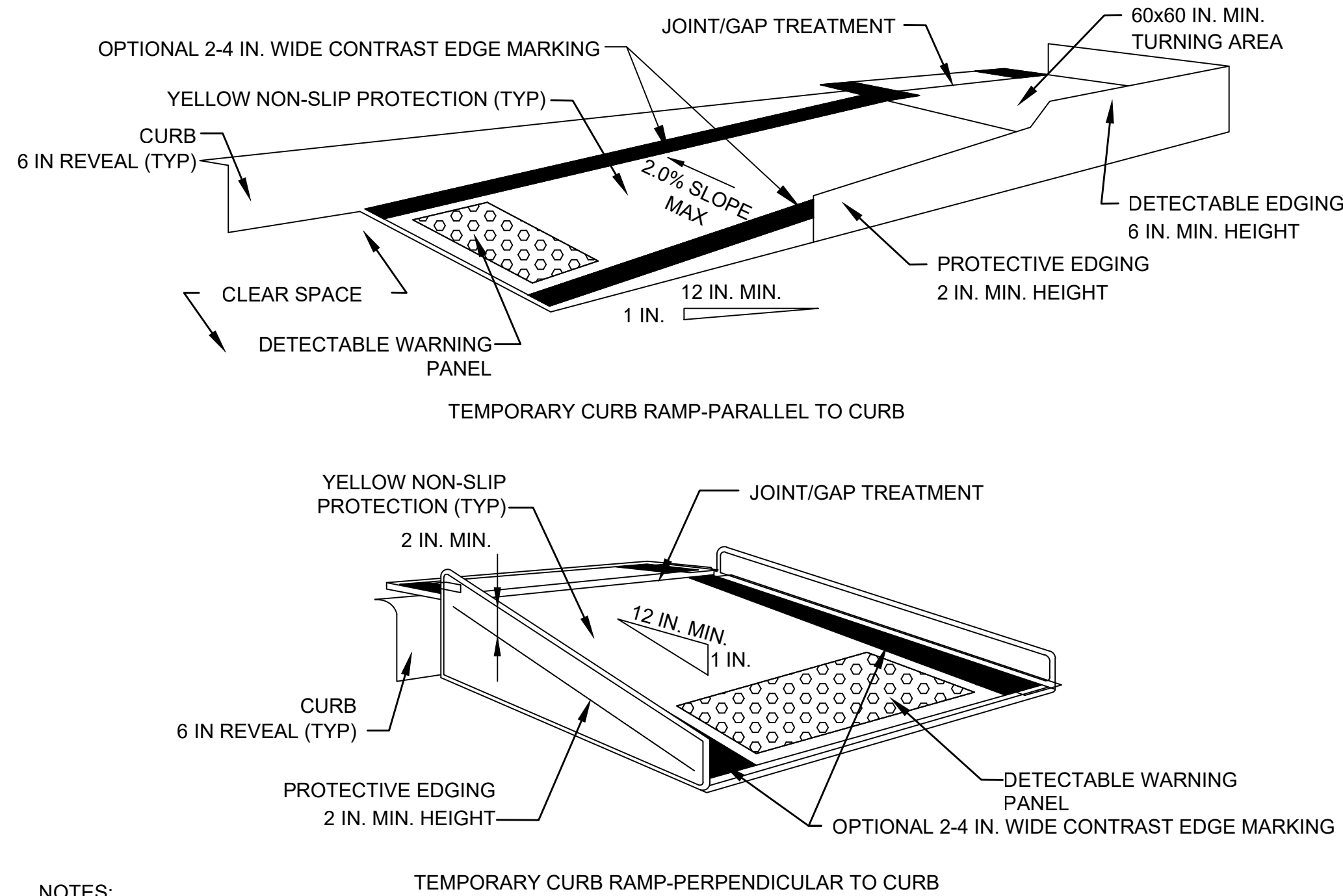
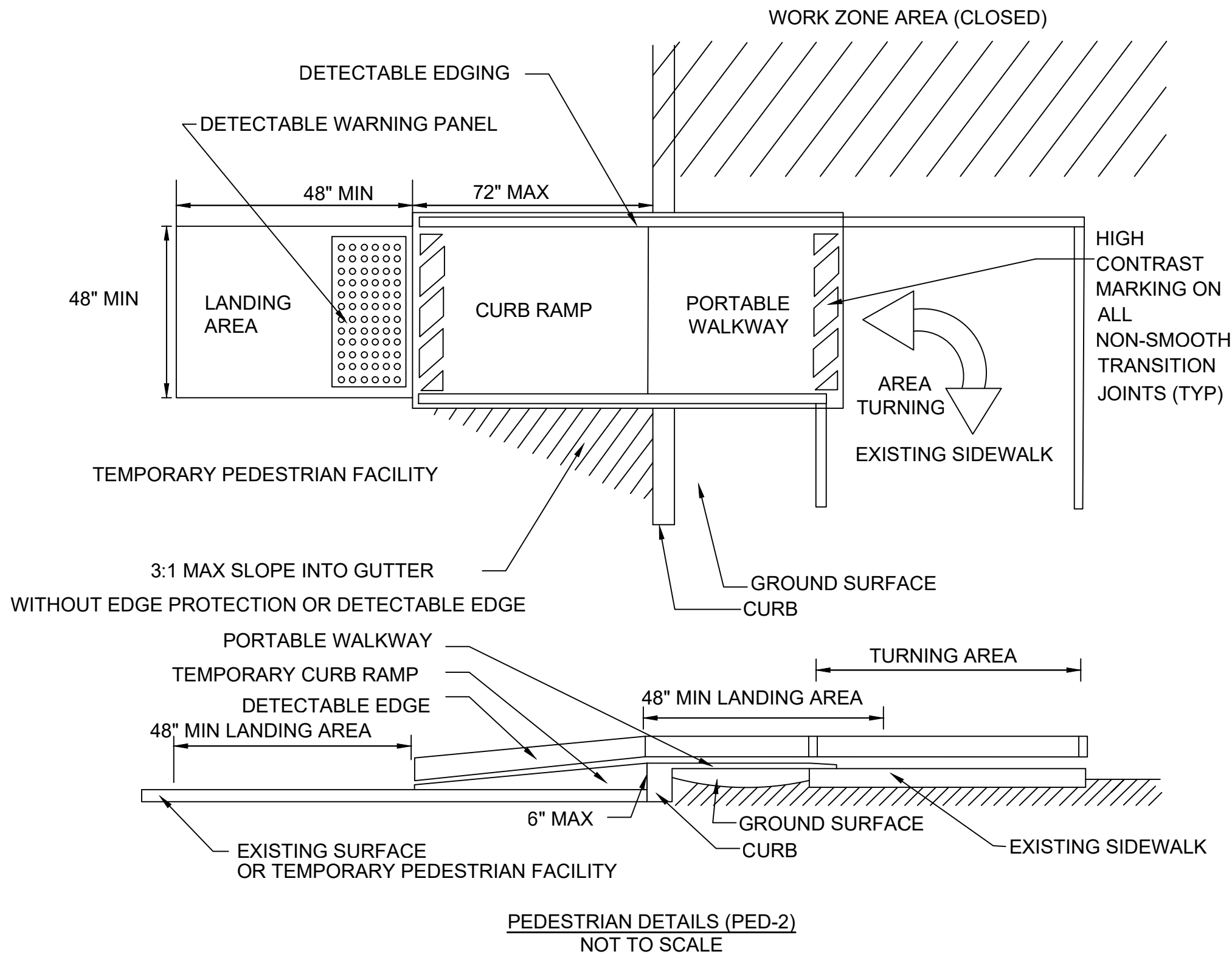


* THIS DELINEATION CAN BE REMOVED TO INCREASE CAPACITY OF THE INTERSECTION. POLICE OFFICER CAN BE REMOVED AS WELL.

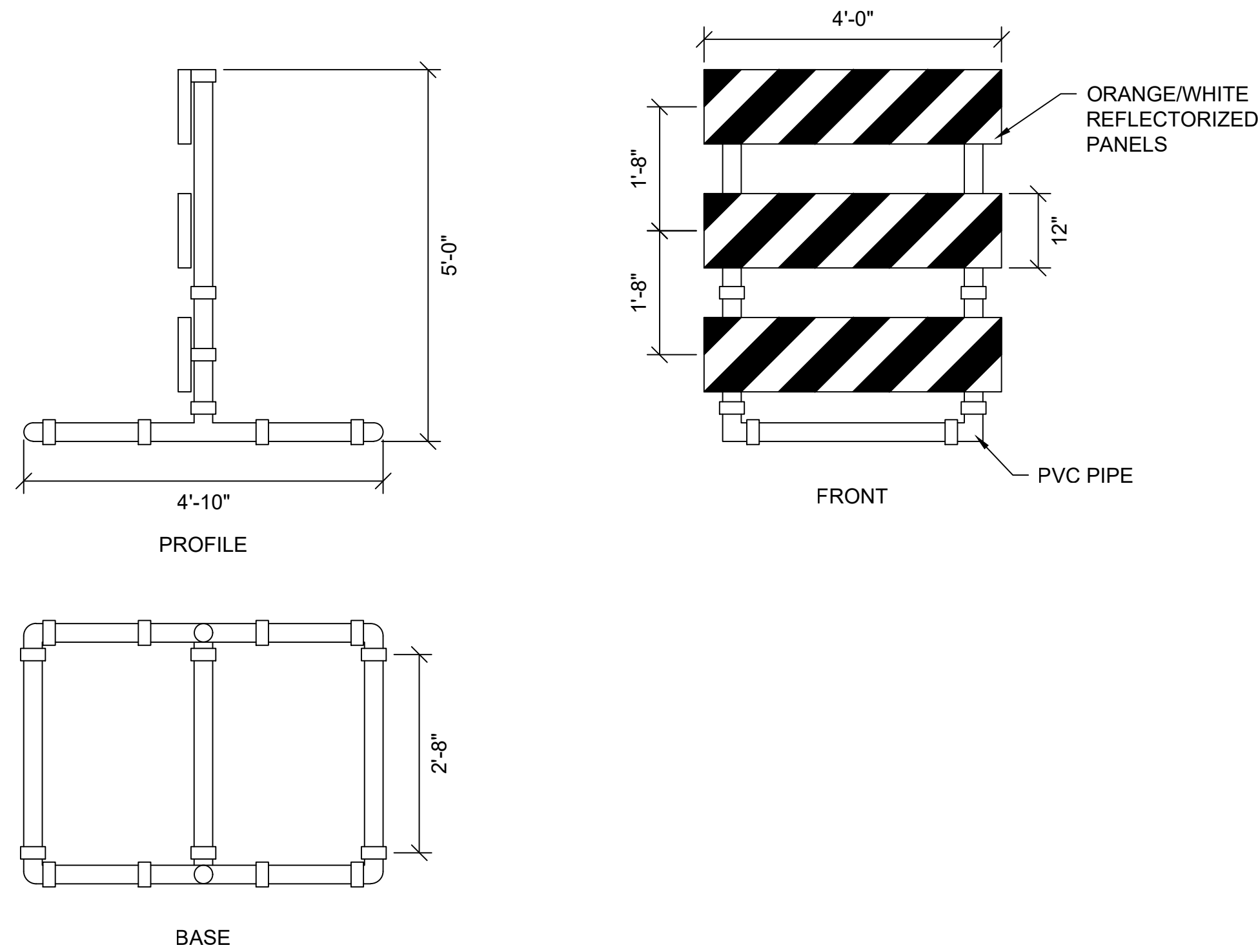
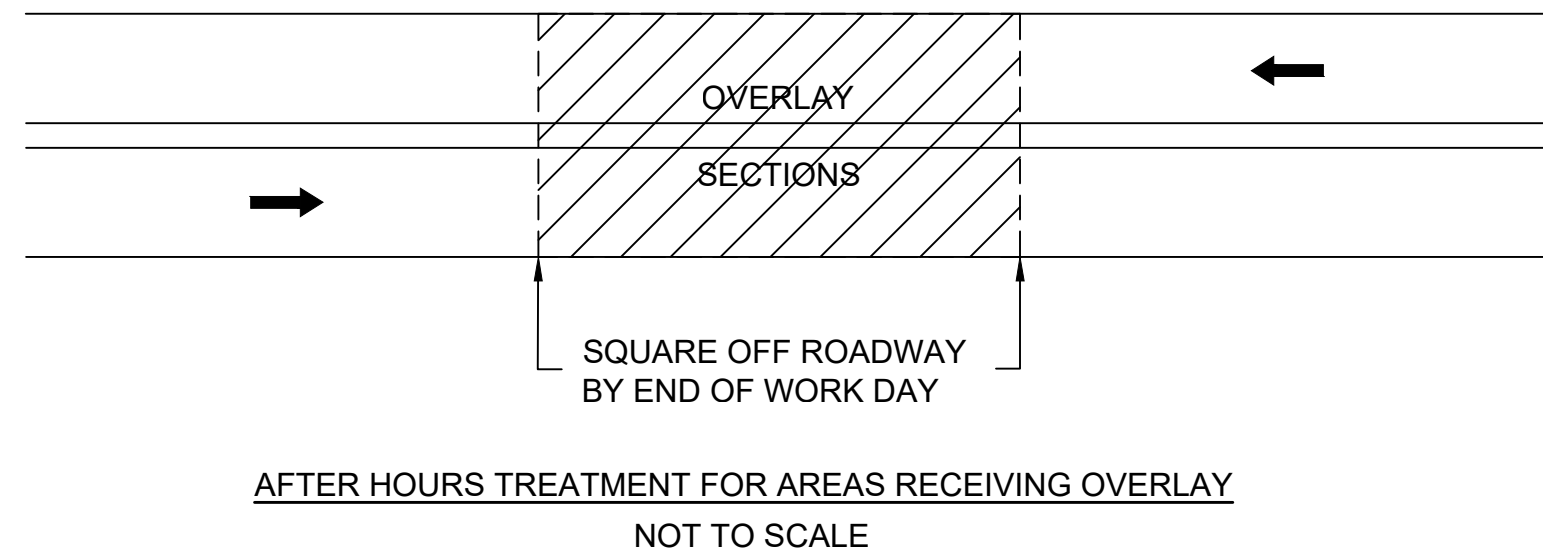
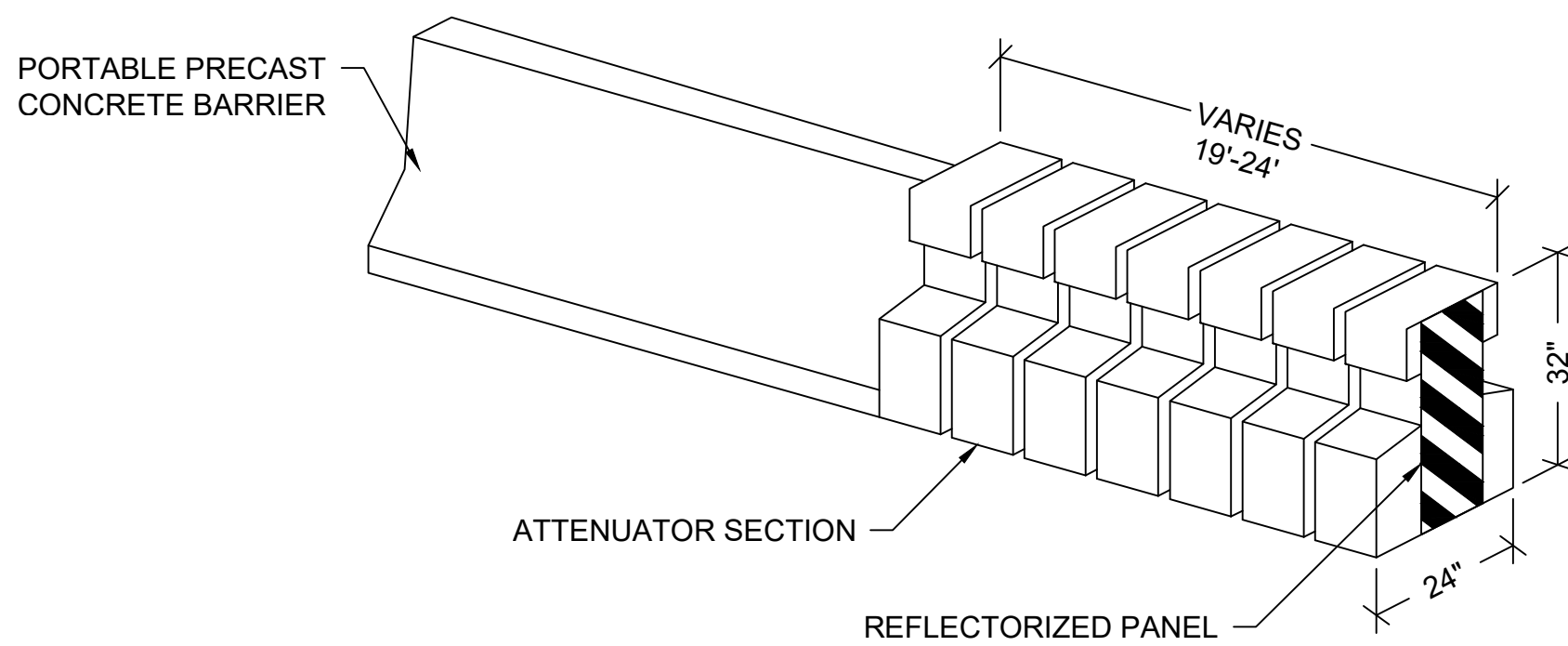
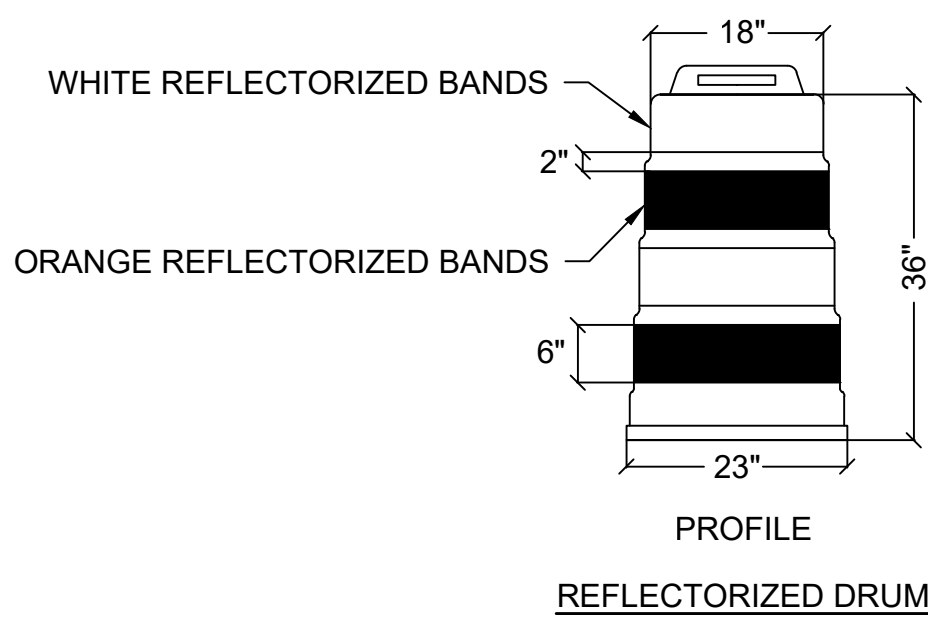
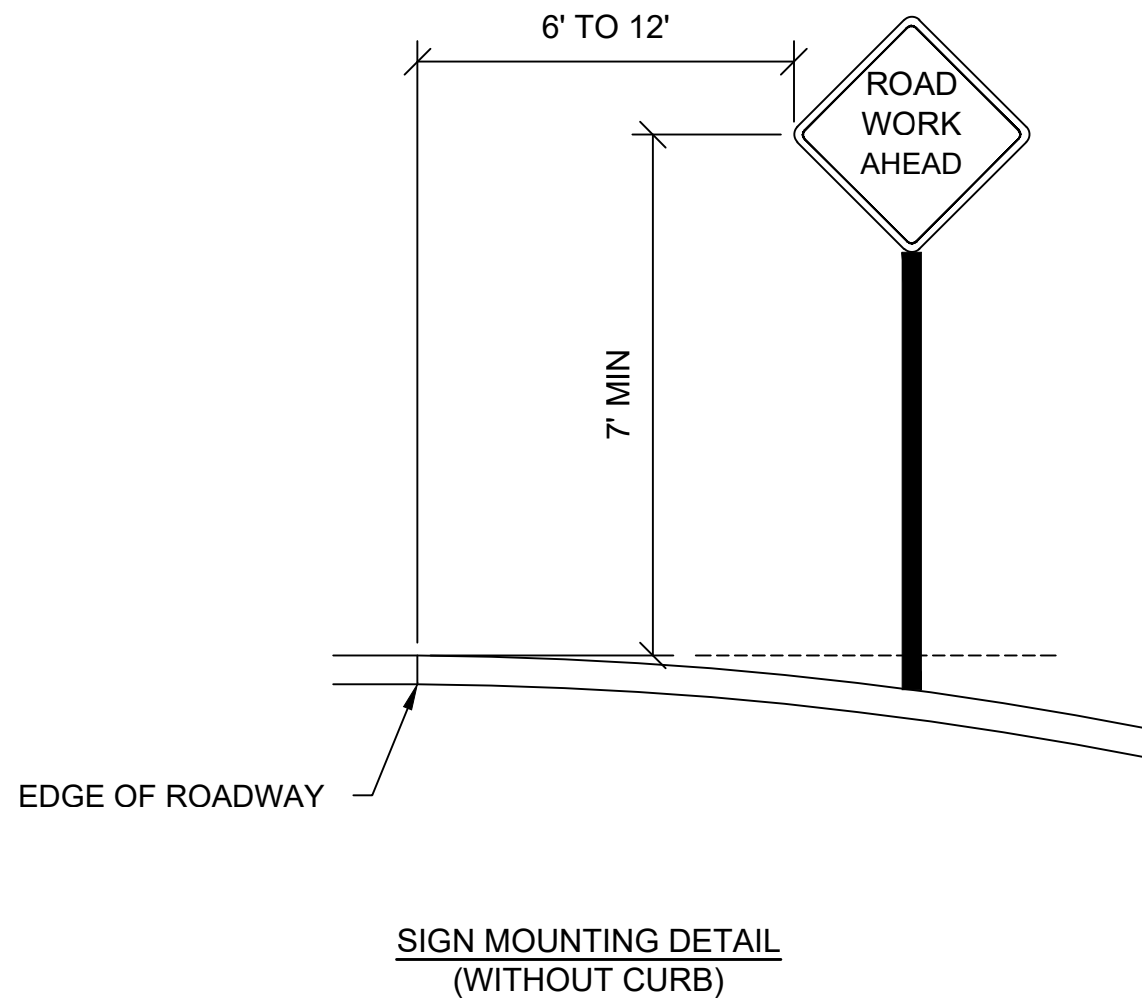
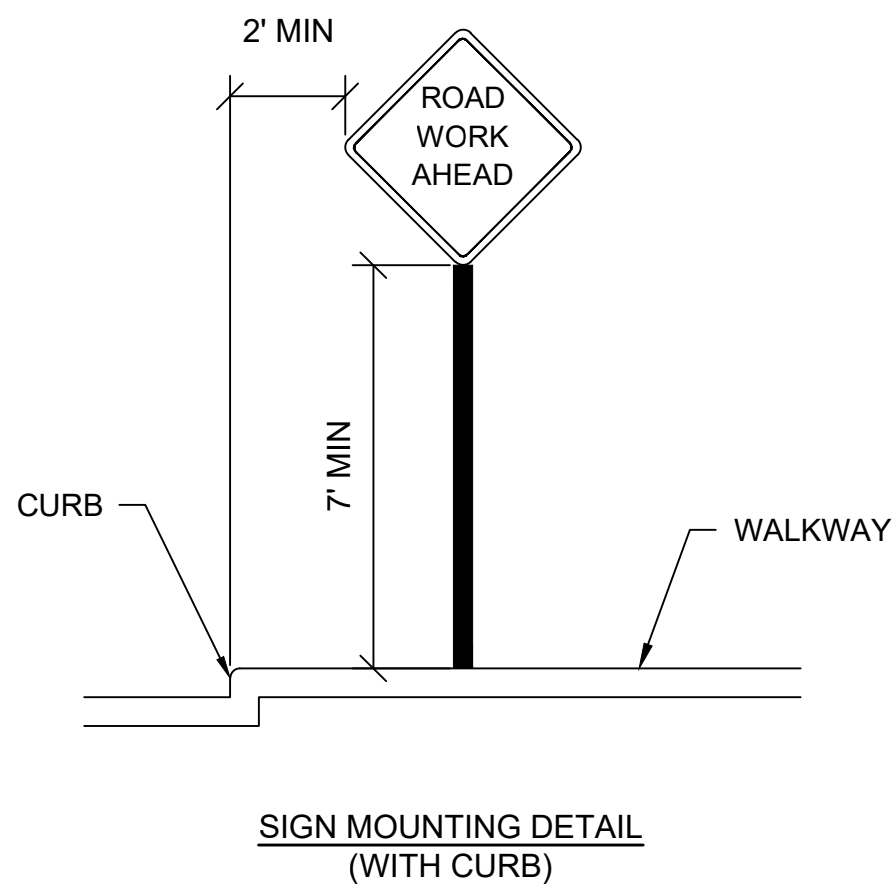
SINGLE LANE APPROACH ONE QUADRANT CLOSURE
(FIGURE INT-2)
NOT TO SCALE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	28	29
HSH PROJECT FILE NO. 2016212.00			

TEMPORARY TRAFFIC CONTROL
DETAILS



- NOTES:
- CURB RAMPS SHALL BE 60 IN. MINIMUM WIDTH WITH A FIRM, STABLE, AND NON-SLIP SURFACE.
 - PROTECTIVE EDGING WITH A 2 IN. MINIMUM HEIGHT SHALL BE INSTALLED WHEN THE CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6 IN. OR GREATER OR HAS A SIDE APRON SLOP STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN THE CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3 IN. OR MORE.
 - DETECTABLE EDGING WITH 6 IN. MINIMUM HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
 - THE CURB RAMP WALKWAY AND LANDING AREA SURFACE SHALL BE OF A SOLID CONTINUOUS CONTRASTING COLOR ABUTTING UP TO THE EXISTING SIDEWALK.
 - CURB RAMPS AND LANDINGS SHOULD HAVE A 1:50 (2%) MAX CROSS-SLOPE.
 - CLEAR SPACE OF 48x48 IN. MINIMUM SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.
 - WATER FLOW IN THE GUTTER SYSTEM SHALL HAVE MINIMAL RESTRICTION.
 - LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 0.5 IN. WIDTH.
 - CHANGES BETWEEN SURFACE HEIGHTS SHOULD NOT EXCEED 0.5 IN. LATERAL EDGES SHOULD BE VERTICAL UP TO 0.25 IN. HIGH, AND BEVELED AT 1:2 BETWEEN 0.25 IN. AND 0.5 IN. HEIGHT.
 - IF A TEMPORARY PEDESTRIAN RAMP LEADS TO A CROSSWALK, THEN A DETECTABLE WARNING PAD MUST BE ADHERED TO THE BASE OF THE RAMP. IF IT LEADS TO A PROTECTED PEDESTRIAN BYPASS THAT DOES NOT CONFLICT WITH VEHICULAR TRAFFIC, THEN A PAD SHALL NOT BE INSTALLED ON THE RAMP.






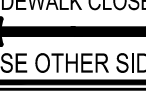
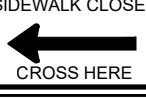
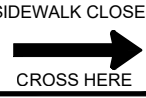
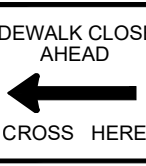












TYPE III BARRICADES SHALL MEET MUTCD REQUIREMENTS (CURRENT EDITION)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	29	29
HSH PROJECT FILE NO. 2016212.00			










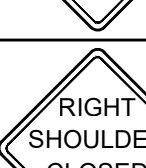
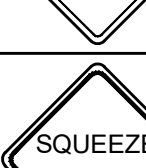

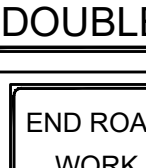
TEMPORARY TRAFFIC CONTROL
SIGN SUMMARY SHEET

TEMPORARY TRAFFIC CONTROL SIGN SUMMARY

IDENTIFI- CATION NUMBER	SIZE OF SIGN (IN)		TEXT	TEXT DIMENSIONS (INCHES)	NUMBER OF SIGNS REQUIRED	COLOR			UNIT AREA (S.F.)	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT		BACK- GROUND	LEGEND	BORDER		
R3-7L	30	30		①	2	①	①	①	6.25	12.50
R3-7R	30	30			2				6.25	12.50
R4-7	24	30			4				5.00	20.00
R9-8	24	12			2				2.00	4.00
R9-9	24	12			1				2.00	2.00
R9-10	24	12			2				2.00	4.00
R9-11aL	24	12			1				2.00	2.00
R9-11aR	24	12			1				2.00	2.00
R9-11L	24	18			1				3.00	3.00
R9-11R	24	18			1				3.00	3.00
W1-4L	36	36			2				9.00	18.00
W1-4R	36	36			2				9.00	18.00
W4-2L	36	36			2				9.00	18.00
W4-7L	36	36			1				9.00	9.00
W5-1	36	36			4				9.00	36.00
W8-1	36	36			2				9.00	18.00
W8-3	36	36			2				9.00	18.00
W8-15	36	36			2				9.00	18.00
W8-24	36	36		↓	2	↓	↓	↓	9.00	18.00

① SEE MUTCD 2009 EDITION, 1979 STD. HWY. SIGNS AND SECTION M9.30.0. TYPE III OF THE MHD STANDARD SPECIFICATION FOR TEXT DIMENSIONS AND COLOR. BACKGROUND SHEETING FOR ALL CONSTRUCTION WARNING SIGNS SHALL BE OF A FLUORESCENT ORANGE COLOR PER MASSDOT SUPPLEMENTAL SPECIFICATIONS DATED JUNE 15, 2012 SECTION 850.43.

TEMPORARY TRAFFIC CONTROL SIGN SUMMARY

IDENTIFI- CATION NUMBER	SIZE OF SIGN (IN)		TEXT	TEXT DIMENSIONS (INCHES)	NUMBER OF SIGNS REQUIRED	COLOR			UNIT AREA (S.F.)	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT		BACK- GROUND	LEGEND	BORDER		
W11-2	36	36		①	4	1	○	○	9.00	36.00
W13-1P	18	18			2				2.25	4.50
W16-7PL	24	12			4				2.00	8.00
W16-9P	24	12			2				2.00	4.00
W20-1	36	36			4				9.00	36.00
W20-4	36	36			4				9.00	36.00
W20-5L	36	36			2				9.00	18.00
W20-7	36	36			2				9.00	18.00
W20-7B	36	36			4				9.00	36.00
W21-5A	36	36			1				9.00	9.00
W30-8R②	36	36		↓	2	↓	↓	↓	9.00	18.00
R2-10A②	48	36		4D 4D 4D 6D	4	ORANGE WHITE	BLACK	BLACK	12.00	48.00
R2-10E	36	48		5C 5C 5C 5C	4	ORANGE WHITE	BLACK	BLACK	12.00	48.00

① SEE MUTCD 2009 EDITION, 1979 STD. HWY. SIGNS AND SECTION M9.30.0. TYPE III OF THE MHD STANDARD SPECIFICATION FOR TEXT DIMENSIONS AND COLOR. BACKGROUND SHEETING FOR ALL CONSTRUCTION WARNING SIGNS SHALL BE OF A FLUORESCENT ORANGE COLOR PER MASSDOT SUPPLEMENTAL SPECIFICATIONS DATED JUNE 15, 2012 SECTION 850.43.
② MASSDOT STANDARD SIGN.